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Freshwater management: policy options and possible actions to expedite implementation

Report of the Secretary-General

Summary

While some progress has been made towards the safe drinking water targets set out in the Johannesburg Plan of Implementation, a concerted and heightened effort is required from the international to the local level to ensure that safe drinking water is available to all. Strengthened government and donor commitment are needed in the elaboration of detailed investment plans to meet the targets set out in the Plan of Implementation, backed by adequate budgetary and aid allocations and strategies to raise additional low-cost financing. Resources are needed not just for infrastructure but also for strengthening decentralized water governance and institutional capacity-building. As main water service providers, public utilities are in need of support for strengthened governance, notably to achieve better cost recovery in order to maintain and upgrade existing systems while extending service to those, mostly poor, people who are not yet served. Tariff reform and better targeted subsidies are key areas for action. A public consensus could be sought on how best to involve the private sector in water services, including both large and small-scale private providers. Integrated water resources management can help reconcile conflicting water uses, address environmental and social concerns stemming from unsustainable water consumption and strengthen water-related disaster prevention. Adoption of low-cost technologies and demand management measures can enhance water use efficiency. Strengthened water monitoring systems, regulatory mechanisms and enforcement capacities will be essential to manage water quality concerns. Greater community involvement in water resources management can promote use of simple, easily maintained technology, facilitate cost recovery and help ensure equitable access.

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I. Introduction

1. At its twelfth session at Headquarters in April 2004, the Commission on Sustainable Development reviewed the state of implementation of the goals and targets relevant to freshwater management, as contained in Agenda 21, the Programme for the Further Implementation of Agenda 21 and the Johannesburg Plan of Implementation. Also at its twelfth session, the Commission identified constraints and continuing challenges to the implementation of these goals, including the targets set out in the Johannesburg Plan of Implementation on access to safe drinking water and integrated water resources management.

2. The focus of the present report is on policy options and possible actions to overcome these constraints and challenges. The report provides a point of departure for the discussions of the intergovernmental preparatory meeting. The outcome of those discussions will be considered by the thirteenth session of the Commission on Sustainable Development.

3. Findings of the present report are based on data and information from various sources and stakeholders, including UN-Water,[1] major groups and networks and secretariats of various United Nations conventions. The report makes reference to sanitation and human settlements insofar as there are clear policy linkages, indicating where specific options and actions are treated at greater length in the companion reports of the Secretary-General on those themes. It also addresses cross-cutting issues such as poverty reduction, health, gender equality and sustainable consumption and production.

II. Providing safe drinking water to all

4. The 2004 report of the Joint Monitoring Programme for Water Supply and Sanitation[2] concludes that, over the 12 years leading up to 2002, 1.1 billion people have gained access to an improved source of drinking water, with an increase in global coverage from 77 to 83 per cent. While gains in South Asia were the greatest, from 71 to 84 per cent, Asia as a whole still accounts for two thirds (675 million) of the world population lacking satisfactory access to safe drinking water. Sub-Saharan Africa has expanded coverage from 49 to 58 per cent, leaving 288 million people without access. The Joint Monitoring Programme reports a sizeable increase in numbers without access to an improved source in urban areas of East and South-East Asia, the result of rapid urbanization. Still, by far the largest number of people without access to safe drinking water worldwide remain in rural areas.

5. Governments that are lagging significantly behind in meeting the water goals and targets may wish to review their national (sustainable) development strategies, with a view to increasing the priority assigned to providing access to safe drinking water and basic sanitation. Some countries (for example, South Africa[3]) have chosen to enshrine a right of access to water in their constitutions, while others reflect this in national water legislation. Credible commitment would involve best efforts to mobilize the necessary financial and technical resources to meet water supply goals and targets, including through the creation of a strong enabling environment for sectoral investment and efficient service delivery by a range of providers. Given how far they lag behind, rural areas deserve special emphasis in government water investment plans.

A. Supplying safe drinking water in urban areas

6. The rapid urbanization of the developing world, with its expansion of informal settlements, poses a major challenge in water supply as in other infrastructure sectors.[4] While mega-cities continue to grow, roughly half of urban residents in the developing world live in cities of fewer than 500,000 inhabitants.[5] These settlements hold limited attraction for large-scale private water companies and may also escape the attention of donors prioritizing investment in rural water supply.

7. Public water utilities remain the predominant supplier of water to urban households throughout the world. In developing countries, they are frequently underfunded and poorly managed. Low tariffs, which do not permit cost recovery even from those able to pay, compromise service quality and reliability and service expansion. Thus, customers are reluctant to pay higher prices, which prevents service improvement, creating a vicious cycle. While in some instances encouraging private participation in water utility management may be an option to address these deficiencies, in others it is not, either because of an inability to attract private investors[6] or because of public reservations. The immediate priority in those instances would be to build stronger managerial capabilities within the public utilities themselves. Corporatization is a common approach that creates an arm's length relationship between Governments (as the regulators) and regulated public utilities, giving managers the independence and incentives to operate the utility as a commercial venture without forsaking its public service mandate. In many instances, greater reliance on competitive contracting for specific water-related services (including, meter installation, reading, billing and collection, repair and maintenance and computer services) has enabled public utilities to lower costs and improve the quality of service. A move in this direction would have the added advantage of stimulating local entrepreneurship and strengthening small-scale service providers.

8. Ensuring access to all and providing for the sustainability of water supply systems both depend on achieving a reasonable cost recovery from those who can afford to pay. In the short term, adjustments to the tariff structure could aim at recovering operation and maintenance costs of water supply systems, with gradual movement towards full cost recovery. In Senegal, for instance, the reform of the water utility was accompanied by an operating subsidy in the early years, with tariffs gradually rising to cost-recovery levels.

9. Experience suggests that a variety of approaches can be used to address the water needs of the poor, including a guarantee of free minimum service (as in South Africa, where the new water law provides every household with 200 litres of free water per day), increasing block tariffs (as in Côte d'Ivoire and Senegal), direct subsidies (as in Chile where they are means-tested and subtracted from water bills of eligible customers, or in Côte d'Ivoire and Senegal, where they go to cover connection costs), community service obligations, performance incentives and fiscal transfers to utilities.[7] Preferential tariffs and direct subsidies to the poor can weigh heavily on public finances where the majority of water consumers are poor, especially when the income elasticity of demand for water is low[8] and the scope for cross-subsidy from better-off consumers limited.[9] Colombia has developed a well-functioning cross-subsidy scheme for water and other public services based on assignment of each household to one of six residential strata, with the lowest receiving a sizeable subsidy and the highest paying a surcharge on full marginal

cost. In many countries, high-volume industrial and commercial water users cross-subsidize residential ones.

10. Participation of large private companies in the water sector is sought for a variety of reasons, from improved management of water assets and service delivery to injection of additional capital into the expansion of the water supply network. Such participation can take many forms, from management contracts, lease contracts and concessions, to greenfield projects (build-lease-own and build-operate-transfer, for example), joint public-private ownership and asset transfer through privatization, giving Governments considerable discretion. The range of options spans different contract durations and different mixes of public-private ownership, financing and risk bearing and operational responsibility. Where private participation is sought, wide public consultation is crucial to building consensus on the rationale for and the form of such participation. This can reduce political risk and thus the rate of return that prospective investors in the sector would be willing to accept.

11. Experience shows that small-scale private providers and community-based organizations can provide a valuable service in informal settlements not connected to the main piped network. Until Governments can connect slum communities to the piped network, for example through "last-mile" financing,[10] the contribution of such providers could be enhanced through easier access to credit, technical support and suitable regulations to safeguard water quality.[11] They may also be encouraged to form partnerships with larger enterprises, which may enjoy readier access to finance and certain economies of scale, while small firms may be more familiar with customer needs and have better knowledge of locally appropriate technologies such as low-cost piping.

12. Experience also suggests that communities are capable of mobilizing significant resources, in cash and in kind, for investing in water infrastructure, for instance through community savings schemes. Still, given the widespread poverty in slum communities and the extensive social benefits of having access to safe drinking water and sanitation, there is an important role to be played by Governments. This may involve construction grants, low-interest loans or loan guarantees. It may also involve well-targeted government subsidies to assist poor households that lack easy credit access to finance the upfront costs of water access. All such measures would be more effective if complemented, notably in the case of informal settlements, by the regularization of land titles and tenure security, which promote credit access and encourage investment in water, sanitation and other infrastructure.[4]

13. A key responsibility of the water regulatory authority is to ensure that contracts are properly executed and service obligations properly adhered to. While early experience with public-private partnerships in the water sector and in other infrastructure sectors was mixed, including instances of poor contract design, learning through experience should help in avoiding some of the pitfalls in future. In general, while not all contingencies can be fully anticipated and reflected in contractual terms, well-designed contracts can minimize disputes and demands for renegotiation at a later date. Having an effective arbitration mechanism in place with well-defined and enforced remedies for breach of contract can help to bring about prompt dispute resolution and create a predictable investment environment.

B. Supplying safe drinking water in rural areas

14. Roughly a third of the world's rural population remains unserved by improved drinking water sources. Expanding rural water supply, together with sanitation, can be viewed as integral to broader poverty reduction efforts. The rural poor generally do not pay for water with cash but spend their time and energy fetching water (especially women and girls). Thus, along with other measures, improving the accessibility to safe drinking water can contribute both in the near and long term to boosting rural welfare and incomes, which will be essential in order to generate the resources for maintaining water supply and other essential infrastructure.

15. The "top-down engineering" approach of the International Decade on Drinking Water Supply and Sanitation has shown its limits in terms of the sustainability of the installed water supply systems (including pumps and wells). Thus, even as Governments work to extend coverage to unserved rural communities through new infrastructure development, the rehabilitation of existing water infrastructure cannot be neglected. Rural water supply programmes would do well to rely more on a bottom-up approach, considering local communities as empowered stakeholders rather than beneficiaries, building on community institutions, know-how and resources in water system design and management, utilizing technologies that require a minimum of maintenance and ensuring that communities and 'ocal entrepreneurs have the skills and affordable materials and spare parts to perform necessary maintenance. A degree of design standardization would be desirable to achieve scale economies in parts and materials production or procurement and in training on system maintenance.

16. In managing local water-supply systems, community-based institutions such as water committees and user groups, with due involvement of women, can play a vital role in ensuring equitable access, operational efficiency, system maintenance and accountability to end users. They can also devise means of mobilizing resources, including through user fees, for construction and maintenance of community water infrastructure. These institutions may need to be given higher legal standing in national legislation and their capacities strengthened. Decentralization has limits and there may be situations where a single water source is shared by several villages, calling for joint management of the resource (one example being the Chandnapuri multi-village water scheme in Maharashtra State in India).[12] At a higher administrative level, regional water or river basin authorities have the responsibility of addressing spillovers across jurisdictions (for example, shared aquifers and upstream pollution of downstream water supplies) and they too would benefit from institutional capacity-building.

17. Where surface water is of good quality but seasonal in flow, small dams and reservoirs to store water both for household use and for agriculture may be an attractive option. Owing to the scarcity of clean surface water in many rural areas, groundwater resources will often need to be tapped for providing drinking water supply. Sustainable development and management of groundwater resources requires a strong regulatory or incentive regime to control aquifer depletion and quality deterioration. Use of brackish groundwater from mining of extensive aquifers may be an option in water scarce countries, using small reverse osmosis units, possibly driven by renewable energy sources.

18. Rainwater harvesting can also be an important water source in rural communities.[13] While the collection of rainwater by a single household may not be significant, the impact of thousands or even millions of household rainwater storage tanks can potentially be enormous. The harvested rainwater needs to be filtered or disinfected, however, before it can be used for drinking purposes. In Bangladesh, since 1997, about 1,000 rainwater harvesting systems have been installed, primarily in rural areas, as a viable alternative for providing safe drinking water in arsenic affected areas. Seventeen provinces in China have adopted the rainwater utilization technique, building 5.6 million tanks with a total capacity of 1.8 billion cubic metres, supplying drinking water for approximately 15 million people and supplemental irrigation for 1.2 million ha of land.[14]

III. Implementing integrated water resources management

19. Integrated water resources management is a well-recognized framework for pursuing wise and forward-looking management and the development of water resources, including their allocation among competing uses. Managing competing uses within this framework would allow adequate consideration of environmental flow requirements, variations in water quality from upstream to downstream and within aquifers, and the impacts of unregulated groundwater withdrawals. The development of guidelines on allocation between different use-categories can be made part of integrated water resources management plans.

20. Fostering international cooperation on international watercourses, based on legal instruments and pragmatic measures and programmes, can contribute to both sustainable development and peace and security. Such cooperation, whether bilateral or regional, can include sharing of information and experience, cooperative monitoring networks, joint infrastructure development, shared training programmes, and technology transfer and adaptation. Strengthening capacities of international river basin organizations is viewed an important condition for promoting such cooperation, while partnerships and dialogues involving local authorities, communities, civil society and the private sector have also proven useful.

A. Preparing integrated water resources management and water efficiency plans

21. In the Johannesburg Plan of Implementation, the target date for the preparation of national integrated water resources management and efficiency plans was set at 2005. While there are no official data on progress towards this target, surveys suggest that implementation is uneven. It is hampered in many instances by limited understanding of what integrated water resources management means in practice, lack of a common methodology for plan formulation, limited technical capacities and insufficient financial support for plan preparation and stakeholder resistance to an approach that may threaten the status quo, for example, with respect to the allocation of responsibilities for water resources management. Given that some countries are late in starting the process, a reasonable expectation is that most countries will have commenced plan preparation by the end of 2005, with an appropriate institutional responsibility and financing in place, if need be with donor support.

22. Despite difficulties, experience in plan preparation is accumulating in this field, with countries following approaches tailored to their water management objectives and institutional capacities. Some have taken the route of developing comprehensive plans covering basin-wide assessment of surface and groundwater resources, water demand projections, water management analysis to balance supply and demand among different uses, a framework for stakeholder participation, investment requirements, and enabling policy and institutional frameworks. Others have chosen to start with a step-wise approach, considering the elaboration of key policy principles or establishment of water management institutions as an important first step. Advancement in the process in many countries falls somewhere in between these two extremes. The following are emerging as key elements of the integrated water resources management plan preparation process:

(a) Setting up a high-level national mechanism for the preparation of the plan, for example an inter-ministerial committee[15] that delegates technical responsibility to an existing water management institution or, if necessary, a newly created one. The committee could define le d institutional responsibilities, intersectoral coordination arrangements, the nature and extent of stakeholders' participation, broad needs of water user sectors, information and data requirements on water resources and the socio-economic status of users and the time frame for preparing the plan;

(b) Aligning national water management objectives and priorities with national socio-economic development plans and national sustainable development strategies, and with global commitments translated into the national context;

(c) Assessing national capacities required to prepare the plan. If existing capacities are limited, seeking external assistance for training to strengthen the process;

(d) Evaluating baseline conditions, including supply and demand trends, and identifying the main challenges and constraints to be overcome in order to meet the targets set out in the Johannesburg Plan of Implementation and other water sector objectives;

(e) Launching a multi-stakeholder dialogue to define priorities and inform the preparation of the plan and enhancing mechanisms for information sharing;[16]

(f) Defining strategic options together with time-bound activities and concrete actions; their estimated costs; institutional responsibilities for execution; monitoring and evaluation mechanisms; and other measures to secure plan implementation;

(g) Securing political and budgetary support during the preparatory process and ensuring endorsement of the plan at the highest political level since it encompasses actions that go beyond the administrative jurisdiction of a particular water institution;

(h) Defining minimum performance thresholds for various elements of the plan, and providing for regular plan updating.

B. Enhancing water use efficiency and productivity

23. In the case of agriculture, which accounts for 70 per cent of global water withdrawals, raising water use efficiency and water productivity is often crucial to sustained improvements in farmers' incomes. In some contexts, the principal challenge is to make more efficient use of water that is already being extracted for irrigation. In others, the challenge is to harness more effectively available water resources for irrigation and other uses whether surface water, groundwater or rainfall, always mindful of natural flow requirements. Measures that have worked for improving water use efficiency in irrigated agriculture with varying degree of success under alternative socio-economic conditions include: economic incentives to encourage investments for enhancing water productivity; reform of irrigation water subsidies; decentralization of infrastructure management; structural improvements to water conveyance infrastructure (for example, lining of irrigation canals); modernization of irrigation management; sustainable farm management practices; and implementation of institutional arrangements that enhance the role of local authorities, operators and water users associations. Reform to certain energy subsidies may also create incentives to limit pumping for irrigation.

24. Patterns of water demand are changing in many developing countries, with industrial and urban uses increasingly competing with agriculture, making accustomed free or low-priced irrigation water in many countries less and less tenable. Water user fees have been used extensively for rationalizing water use in all economic sectors. Where irrigation fees reflect water scarcity, they tend to induce water conservation measures as well as changes in cropping patterns that favour less water-demanding crops. With respect to water-efficient irrigation, a number of small-scale irrigation options are becoming increasingly affordable to low-income farmers, including small drip irrigation kits (the Chapin bucket-kits in Kenya), micro-irrigation kits using low-grade plastic tubes (the Pepsee kit in India) and foot-operated treadle pumps.[17] Experience suggests that, if supported by microcredit and farmer training programmes, the adoption of such methods could advance at a rapid pace.

25. With respect to improved crop varieties, biotechnology research has yielded positive results in terms of enhanced crop yields per litre of water consumed, but there is scope for significant progress. Switching to less water-demanding crop varieties may depend on changes in consumer preferences if they are principally for domestic food consumption. This approach is being introduced experimentally in Africa, utilizing the experience of several local and regional institutions to produce an improved food-barley variety using sustainable management practices. Complementary measures are warranted in soil and land management to enhance water infiltration and retention in different types of soil as well as a proper balancing of water and nutrients. In the event that a switch is made to cash crops, while there is a potential to raise farmers' incomes in the long term, support from agricultural lending institutions in the form of low-cost credit and agricultural extension services may be critical to smooth the transition, especially where the new crops (for example, certain tree crops) take several years to mature.

26. Improvements in water savings and water quality can also be achieved through the use of more efficient and cleaner technologies in the industrial sector. Inducing their adoption would call for a combination of water user fees and water pollution charges/penalties. In household facilities, techniques such as low-flush toilets and

low-flow showers have shown positive conservation impact. Demand for these technologies can be stimulated through appropriate incentives to water users, including usage-based water tariffs and the incorporation of water conservation standards in building codes. Governments may also be able to stimulate local supply of such technologies through directed credit to local entrepreneurs who might otherwise be unable to finance the necessary investments. At the same time, Governments can encourage efforts, whether through government-sponsored research or incentives to private enterprises, to find improved, low-cost technological solutions to tapping non-conventional sources of water such as rainwater, recycled water, grey water, storm water, fog water and, in some instances, desalination. In many instances, more widespread metering and more effective bill collection have contributed to reducing the amount of unaccounted-for water in urban distribution systems by generating revenues for improved operation and maintenance.

C. Managing competing water uses

27. By 2025, 1.8 billion people will live in countries or regions with absolute water scarcity.[18] Even with effective policies and programmes to improve water use efficiency and productivity, the challenge will remain to allocate water efficiently and equitably among competing uses. Recognizing the economic, environmental and socio-cultural values of water is fundamental to making water allocation decisions. In most cases, the main allocation decision is to strike a balance between water for agriculture and water to maintain ecosystem services, although in some countries rapid industrialization also constitutes a significant demand for water. Achieving equitable and efficient allocation will require more effective inter-sectoral coordination, greater stakeholder participation, realigned economic incentives and strengthened capacity for decentralized water resources management.

28. If unchecked, excessive water extraction for agriculture can have major disruptive effects on ecosystems, as attested to by numerous examples from around the world (for example, the Aral Sea and the Murray-Darling Basin (in Australia). In those cases where damage is not already irreversible, ensuring long-term sustainability of supplies calls for restricting overall extraction rates within a water basin, whether a river basin, an aquifer or another common water source. Experience suggests that this can be done through application of the "user-pays" principle, restriction of quantity extracted or both. If policy makers choose to impose time-bound extraction limits, then within those limits fair and efficient allocation rules and the institutions to apply them would need to be in place. In some instances, customary rights already function well as the basis for water allocation. Where they do not, and where extraction rates are excessive, formal rules may need to be devised. Stakeholder participation is crucial to rule-setting if the resulting allocation of water rights is to have force of legitimacy. In general, it is desirable to allow for some transfer of water rights between uses and users, subject to certain constraints, including a system that would ensure fair compensation to those forfeiting their rights. Water markets are one possible mech..ism for effecting such transfers, with compensation to sellers dictated by the market price for extraction permits. Where they are not already well-functioning, however, a cautious approach to their introduction would be advised in order to avoid problems arising from asymmetric information between prospective buyers and sellers and

market power.[19] A balance is desirable between market forces and government regulation to address these concerns as well as to protect third-party interests, including that of safeguarding ecosystem services.

D. Protecting water quality and ecosystems

29. Poor water quality combined with inadequate hygiene practices is a major source of ill-health and life-threatening diseases in developing countries.[20] In addition, the capacity of inland and coastal water ecosystems to support biodiversity is often highly degraded as a result of pollution. Agricultural chemical runoff is one of the most difficult sources of water pollution to control, but the problem is exacerbated by subsidies to fertilizer and pesticide use or to output that weaken incentives for efficient chemical use. Together with a review and, if appropriate, reform of such subsidies, Governments would do well to consider how agricultural extension services could assist farmers in the more effective use of less harmful chemicals and alternative methods of pest management. In the case of industrial effluent and effluent from municipal sewage systems, an important policy objective would be to strengthen regulations and penalties for discharge of non-treated effluents into watercourses. In the interests of greater economic efficiency, Governments may also wish to consider, in the case of non-toxic pollutants, the wider use of effluent charges instead of, or in addition to, discharge standards. Raising investment in wastewater treatment facilities is also likely to be a crucial part of any effort to improve water quality, especially in the case of large population and industrial centres.[2]

30. External costs of pollution often need to be addressed at the river basin level; a river basin agency is best placed to achieve this goal. Raising public awareness at all levels about water quality's implications for ecosystem functions and services and about the social and economic costs of water pollution can help in water quality management. To the extent feasible, the valuation of multiple water use and ecosystem benefits can be utilized to complement other information available to decision makers for making rational policy choices. Promoting understanding of issues such as water flow requirements of river ecosystems and sustainable yield from aquifers can help in protecting these natural assets and encouraging wise use. Similarly, disseminating experiences of cooperation between upstream and downstream communities, including through use of innovative economic tools such as payment for environmental services, can contribute to sound ecosystem management.

E. Preventing water-related disasters

31. Integrated water resources management can provide a useful framework for prevention and mitigation of floods, droughts and other water-related disasters by ensuring protection of wetlands, forests and other ecosystems that regulate water flow and retention. Experience shows that protection of the water flow regulation function of catchment areas can be a highly efficient method of flood prevention. Adequate investment in water-related infrastructure is also crucial to flood and drought prevention, including dams, reservoirs, dikes and canals. Even with such an investment in infrastructure, not all disasters are entirely preventable. Governments need to put policies and programmes in place to mitigate losses. The vulnerability of

different human settlements and population groups would need to be assessed, and early warning systems set up, with well-rehearsed contingency plans for reinforcement of dikes and embankments, evacuation of vulnerable populations and other emergency response measures.

32. In devising response strategies, it is advisable to tap traditional and indigenous knowledge accumulated over years of coping with disasters. In the case of floods, there is a growing appreciation of the need for balance between structural measures (flood prevention infrastructure and improved building codes) and non-structural measures (land use regulation, insurance schemes and improved community participation). The linkage between disaster reduction and poverty alleviation necessitates the involvement of all stakeholders at the local, national and regional levels. Regional cooperation would be useful for disaster reduction and response in shared river basins, ranging from information sharing to coordinated disaster mitigation planning.[21] Confronting climate change also requires international cooperation, including resource transfers, to help vulnerable countries adapt and mitigate risks of water-related disasters.

IV. Strengthening water monitoring programmes

33. Strengthening of water-related monitoring programmes is essential both for monitoring progress towards internationally agreed goals and for supporting integrated water resources management and water resources development, including effective planning to reduce risks from water-related disasters. Because most countries lack reliable water monitoring programmes, limited information exists on both water quantity and water quality. Countries could use the opportunity provided by the commitment to prepare plans for integrated water resources management by 2005 to assess current deficiencies in existing datasets and monitoring networks in order to define a strategy and methodology to make these more reliable. Carrying out a national water quality and quantity inventory for surface and groundwater resources, creating baseline data and identifying water "hot spots", is an essential step in the formulation of integrated water resources management plans. Increased budgetary allocations are essential to make monitoring programmes and networks financially sustainable. In some countries, rehabilitation of existing hydro-climatic and groundwater measurement stations is a priority. In most, there is a need to install new stations.

34. Sustainability of monitoring networks could be enhanced by decentralizing their management to institutions (such as basin agencies) involved in regional or local level water resource planning. Institutional cooperation within Governments as well as cooperation with other stakeholders (e.g., local authorities, industry associations and water-user groups) is needed to improve data availability and reliability and to consolidate and reconcile all the relevant data within the framework of a national water information system. With further methodological refinement and improved data availability and quality, integrated national water accounts may prove useful in providing a rough indication of the value of water for different uses, including non-extractive uses.[22]

35. Improving the global monitoring of water and sanitation goals requires mobilizing political support for the process. The methodology of the joint monitoring programme could be improved by including data on variables such as

efficiency, quality, regularity, affordability and convenience of services. Aligning national-level initiatives with the methodology and deploying more resources to support national monitoring and data collection efforts could begin to address these deficiencies.

V. Meeting the financing challenge

36. Current annual investment in the water sector in developing countries and countries with economies in transition is an estimated $75 billion, of which about $13 billion goes to drinking water supply and $2.5 billion to sanitation.[23] In recent years, $2 to 3 billion of official development assistance (ODA) has gone into the water and sanitation sector, representing around 5 per cent of total ODA.[24] By general agreement, investment in the water sector will need to rise significantly, by one estimate, double, over the next decade in order to meet the targets set out in the Johannesburg Plan of Implementation.

37. High-level commitment by Governments to meet the water and sanitation targets as part of national poverty reduction strategies would send a strong signal to donors. A national-level assessment of investment needs to meet those targets could be undertaken in conjunction with preparation of integrated water resources management and water efficiency plans, with results feeding into national budget preparation. In investment programming, the "software" side of the equation, including institutional and human resources development, deserves attention alongside hardware investments, following a "learning by doing" approach.

38. The efficiency and effectiveness with which resources are used can influence the flow of ODA. In some instances, the capacity of the water sector may constrain effective use of increased inflows, so that managerial and technical capacity would need to be scaled up along with investment. Improved institutional and financial governance can prevent financial leakage and maximize impacts on beneficiaries. Experience shows that strengthening national level coordination among donor programmes in the water sector, in close consultation with the relevant national water management institutions, can help to rationalize use of resources.

39. Where donors and multilateral development banks are willing to provide grant financing, this would be the preferred option, although financing would have to be targeted to investments where other sources are not readily available, notably to serve poor rural and urban communities. To undertake the investments required in the water sector, Governments may have to turn to sources of long-term finance, whether domestic or international. In doing so, they will want to consider how capital can be raised at the lowest cost, since ultimately the users of water services and/or the general taxpayer will have to repay those costs. Evidence suggests that equity finance for water infrastructure in developing countries is in generally short supply and is likely to prove particularly expensive because of investor concerns about non-controllable risks.[25] This suggests that in many instances Governments would choose to rely principally on debt financing.

40. Decentralization of relevant decision-making authority and command over resources can aid improved water sector governance. In some cases, fiscal transfers from the central Government will provide the bulk of local authorities' resources; in others, a degree of fiscal autonomy would permit local authorities to raise financing on their own for local water and other infrastructure investment. One example of capital grants from the national Government to state/provincial authorities is the system of revolving funds created in the United States of America to help finance

investments in clean drinking water. All types of water providers, public, private and community-based, are eligible to borrow from the fund. Each state has the option to set aside up to 30 per cent of its capital grant to provide preferential financing to disadvantaged communities, including through lower-interest-rate loans, principal forgiveness and negative-interest-rate loans.[26]

41. Local authorities may either turn to bank loans or to the capital markets to raise debt finance for water, sanitation and other local infrastructure investment. In many countries, municipal development banks specialize in servicing the investment and other banking needs of local authorities. Municipal bond banks, which began in Canada in 1956, offer a form of credit enhancement to local authorities by selling their own securities and relending bond proceeds to local governments, enabling them to pool their borrowing requirements and thus lower finance costs through a wider distribution of fixed costs and a wider market. In some states in the United States, specialized bond banks have emerged for water and sewerage, backed by partial grant funding that enables them to offer lower interest rates. Another approach is for a public sector financial institution to rediscount a sizeable portion of commercial bank loans to municipalities for infrastructure financing, as with Colombia's programme, *Financiera de Desarrollo Territorial* (FINDETER). In this case, commercial banks assume all the credit risk and lending is not influenced by political pressure, which helps to explain the very low share of non-performing loans. Over time, as municipalities demonstrate creditworthiness, they rely increasingly on direct bond market financing, with its lower potential costs. Where local capital markets are relatively well-developed, Governments may choose to issue local currency infrastructure (or utility) bonds. In some instances, they may also be able to access international bond markets, though in so doing they assume the currency risk.

42. Financial sector reforms could open up new financing options by strengthening domestic credit markets. Elements include establishing a legal framework for securities issuance and trading, including regulations for underwriters, brokers, dealers and other entities providing supporting services for the securities market. Municipal-level reforms that would facilitate local resource mobilization include strengthened local tax collection and authority to levy user charges, both of which would improve the revenue side of the budget and enhance the creditworthiness of borrowing institutions. Establishing a clear and comprehensible set of municipal accounts, independently audited with results published, would help in gaining access to capital markets. Municipalities could also benefit from strengthened capacity for generating commercially viable projects, sound financial management and regulatory enforcement.

43. National Governments may be willing and able to provide a partial guarantee for subnational public debt, but only if they are reasonably confident of the ability of provincial or local authorities to repay. In the water sector, that ability depends on a combination of the water utility's expected revenue stream from user fees and the local authority's expected incremental tax revenues as a result of a stronger local economy. Donors may also find such a partial guarantee, whether for loans or bonds, an attractive option, since it is a means of leveraging private resources, lengthening maturities and reducing the cost of funds. Where such guarantees are not available, raising long-term municipal finance depends crucially on strengthening confidence in local financial markets and creating mechanisms that allow financial instruments to be traded.[27]

44. In rural areas and urban informal settlements, experience shows that mobilizing community-level resources, both in cash and in kind, can be an important option to expand water and sanitation infrastructure. Microcredit schemes and revolving credit funds can serve a dual purpose: on the one hand, helping households finance water connections; on the other, financing small-scale water service providers, whether NGOs or private entrepreneurs, to expand and upgrade their services.[28] Beyond a very small-scale investment, however, microcredit would not prove adequate, and other financing facilities would be needed to serve the multiple small-scale water projects that are likely to account for a sizeable share of water investment in rural areas and smaller towns and cities. A promising approach supported by a regional development bank is that of the Chinese Water Infrastructure Financing Facility, under which loans are made, without sovereign guarantee, to a Shanghai-based investment holding company for use in financing small-scale municipal water projects that the Asian Development Bank would not find economical to process individually.[29]

VI. Moving ahead: towards a framework for action

45. **The preceding sections have outlined wide-ranging policy options and actions to overcome the obstacles impeding the achievement of water goals and targets agreed in the Johannesburg Plan of Implementation. They are by no means exhaustive. Given that circumstances and priorities can differ, often dramatically, across countries and even across regions within countries, there is clearly no one-size-fits-all solution, and Governments will want to craft their own strategies, learning from experience, but also charting new directions with innovative approaches.**

46. **National Governments, in partnership with municipalities and local governments, bear principal responsibility for water resources management and supplying safe drinking water to their people, but not all can achieve this goal without the close cooperation of the international community. Each has a vital role to play. At the national level, strong political commitment could be demonstrated in a number of ways: by recognizing access to water as a basic right in national legislation; by including water provision in national poverty alleviation strategies and programmes; by allocating larger resources in national budgets to water investments; by targeting ODA to meet the most pressing water needs in rural areas and urban informal settlements; and by creating a strong enabling environment for raising low-cost, long-term financing for the water sector, including by encouraging public-private partnerships.**

47. **The international donor community can support the efforts of national Governments by: significantly increasing the overall volume of ODA and the amount devoted to water supply and sanitation and to water resources management; securing a sizeable component of grant financing for water supply to serve poor rural and urban communities; better coordinating donor water initiatives at the national level; supporting capacity-building of water-related institutions and organizations at all levels in developing countries and countries with economies in transition; and/or devising new financing mechanisms to meet the smaller-scale investment needs of water projects in rural areas and smaller towns and cities.**

48. **Local authorities and community-based organizations are in the front line of water supply and water management. Options at the disposal of Governments to strengthen local water governance include: recognition of the role, responsibilities and powers of local authorities and community-based organizations in national water legislation; strengthening of the managerial and technical capacities of local entities as an integral part of decentralization of water sector management; ensuring adequate local-level capacity for resource mobilization to meet both operation and maintenance and investment needs of local water systems; and encouraging, through regulatory reform if appropriate, the more active participation of private, including small-scale, providers in local water supply, backed by a regulatory system adequate to enforce water quality standards and ensure affordability.**

49. **Governments may wish to consider a number of policy options in order to expand and upgrade coverage of urban water supply. In as much as public water utilities remain the principal urban water service providers, measures could include: strengthening their governance through technical and managerial capacity-building, including for network planning, finance, administration, metering and bill collection and maintenance; corporatization or other governance reforms to grant public utilities greater decision-making autonomy, for example, with respect to tariff setting, personnel and procurement; encouragement of competition in areas of the water business not subject to natural monopoly; ensuring affordable access to the poor through regulation of tariff structures and/or targeted subsidies (including, as appropriate, for upfront connection costs). To serve those poor communities, often informal settlements, not yet connected to the piped network, a combination of measures may be considered, including: making concessional finance available to community organizations and small-scale private providers for investment in low-cost infrastructure; working with community organizations towards regularizing land titles and providing tenure security in order to strengthen household incentives to invest in water supply and sanitation and to unlock finance from commercial banks; and devising plans, including for mobilizing finance, to extend the piped network to such settlements in a phased manner.**

50. **Along with urban informal settlements, the funding of rural water supply deserves high priority from national Governments and donors. Support for local initiatives led by community-based organizations, including participation of women, is most conducive to project sustainability. As the main water haulers, women are likely to have the strongest interest in ensuring effective operation and maintenance of a convenient and safe water source. Community organizations could benefit in many instances from capacity-building support, in which NGOs can play a valuable role. Tapping local knowledge can result in technical designs and management arrangements better suited to local circumstances. Some degree of equipment standardization is desirable to permit scale economies in parts and components production or procurement and in training maintenance technicians. Donor coordination with Governments in devising such standards is highly desirable. Financial and technical support to small-scale private providers can also be helpful in expanding rural water access.**

51. **While integrated water resources management provides a useful framework for addressing water management challenges, many Governments have still to assign institutional responsibility for coordinating the formulation**

of such plans and donors may wish to redouble efforts to ensure adequate financing and technical assistance to support that process. Greater flexibility would help water allocation institutions to adapt to changing patterns of demand, while institutional design and regulation emerging from a consultative process would help ensure that allocation rules and compensation for water right transfers are both fair and are seen to be so. Integrated water resources management can provide a strong basis for an effective water-related-disaster early warning, prevention and mitigation system.

52. National policy and donor-supported actions can make an important difference to water use efficiency, with policies relating to the agricultural sector being particularly important in view of its predominance as water user. Among the options to be considered are: reforming subsidies that encourage wasteful water use, including for irrigation water, fuel and electricity used in water pumping, inputs that are water complements and agricultural output; supporting improvements to water conveyance infrastructure; providing low-cost credit to farmers for water-efficient, small-scale irrigation technologies; extending technical assistance to farmers for introducing improved on-farm water management practices; and research into developing less water-demanding and more drought-resistant plant varieties. In the case of industrial water use, stricter application of the user-pays and polluter-pays principles would encourage water conservation and recycling and wastewater treatment.

53. An augmented water-related ODA flow is key to meeting the water financing gap. Consideration could be given to an increasing grant component, focusing in particular on serving those populations most in need. Beyond that, Governments may have a number of other financing options, not all equally feasible in all countries. These include: augmenting revenues from taxes and user fees, notably to cover operation and maintenance costs; raising long-term debt and equity finance for water network expansion; devising new low-cost financing arrangements for small-scale water systems, for example, through dedicated water financing facilities and consolidated borrowing of multiple local authorities or service providers; and promoting public-private partnerships to strengthen water utility management and to provide new and additional water sector finance.

54. Advancing implementation of the water goals and targets remains at the core of work of several United Nations agencies, as well as of many other international organizations and networks. Greater cooperation and coordination among these initiatives would enhance their coherence and effectiveness. This applies also to mobilizing the sizeable additional financial and technical resources that are critical to reaching the water targets. Strengthening the global monitoring programme and national monitoring and evaluation systems and capacities through technical assistance is fundamental to enable assessment of progress towards the water and sanitation targets.

55. While the challenge is daunting, there are good reasons for optimism. The international community is focused on what is needed to meet the target on provision of access to safe drinking water set out in the Johannesburg Plan of Implementation (and the related targets on sanitation and improving the lives of slum dwellers) as part of a broad thrust to accelerate progress towards achieving the Millennium Development Goals. With time-bound targets agreed by some key donors, momentum would appear to be building to meet the Monterrey commitments on development assistance. Governments are much

more aware of what is required from them in terms of policy, budgetary and institutional reforms to mobilize additional domestic resources and external support. Local authorities have in many instances been accorded greater autonomy and, to a lesser degree perhaps, command over resources. Solutions are well known to practitioners, and communities, NGOs, and the private sector have acquired valuable experience in water service delivery on which to build in partnership with Governments. Innovative instruments are being employed to secure low-cost long-term financing for water management and other infrastructure.

Notes

[1] The members of UN-Water are: FAO, IAEA, IFAD, the International Strategy for Disaster Reduction, UNCTAD, UNDP, the Department of Economic and Social Affairs, ECA, ECE, ECLAC, UNEP, ESCAP, UNESCO, ESCWA, UN-Habitat, UNHCR, UNICEF, UNIDO, UNU, the World Water Assessment Programme, the World Bank, WHO and WMO.

[2] See WHO/UNICEF Joint Monitoring Programme web site (http://www.wssinfo.org/en).

[3] According to the Bill of Rights, Constitution of South Africa, section 27 (1) (b), "Everyone has the right to have access to sufficient food and water".

[4] *The Challenge of Slums: Global Report on Human Settlements 2003* (UN-Habitat publication, Sales No. 04.III.Q.1).

[5] Department of Economic and Social Affairs/Population Division (2004), "World urbanization prospects: the 2003 revision", table 6.

[6] World Bank data shows that over half of private water and sanitation projects and three quarters of investment has gone to just six countries, including Argentina and Brazil: see World Bank, Private Participation in Infrastructure Project Database.

[7] See World Bank, "Reforming the Water Sector", in *Reforming Infrastructure: Privatization, Regulation, and Competition* (Washington, D.C., 2004).

[8] Most empirical evidence suggests that the income elasticity of demand for water by households is indeed low; see J. M. Daluisen, R.J.G.M. Florax, H.L.F.M.G. de Groot, and P. Nijkamp (2001), "Price and Income Elasticities of Residential Water Demand", Tinbergen Institute discussion paper TI2001-057/3, Amsterdam.

[9] In time, rising per capita incomes would tend to shrink the size of subsidies and relieve budgetary pressures.

[10] One example is the Decentralized Infrastructure and New Technologies Facility established by India's Infrastructure Development Finance Company to provide "last mile access" to basic infrastructure, including water supply; See M. Mehta, *Meeting the Financing Challenge for Water Supply and Sanitation. Incentives to Promote Reforms, Leverage Resources, and Improve Targeting*, World Bank, Water and Sanitation Program, Washington, D.C., 2003.

[11] Despite the role of small-scale water providers, over the past decades, Governments have favoured large water utility companies, and results remain unsatisfactory. Many low-income households buy their water from small-scale water providers, and it stands to reason that efforts directed at improving their services and lowering their costs would benefit the poor.

[12] UNDP/World Bank, Water and Sanitation Programme, *Focus on Maharashtra: Alternative Management Approaches for Village Water Supply Systems*, field note, January 2004.

[13] Typically, a rainwater harvesting system consists of three basic elements: the collection system, the conveyance system, and the storage system. Collection systems can vary from simple types within a household to bigger systems where a large catchment area contributes to an impounding reservoir.

[14] See http://www.unep.or.jp/ietc/publications/urban/urbanenv-2/index.asp.

[15] For example, in Chad, the preparation of the integrated water resources management plan started in 1999 and was finalized and nationally endorsed in 2003. Two national committees were created by decree to oversee the exercise, one technical at the level of 10 directors of technical departments and representatives of main actors and one strategic with ministers, municipalities and elected representatives (see http://www.un.org/esa/sustdev/tech_coop/sdea/index.html).

[16] Current reforms in managing water resources promote a more democratic and responsive management set-up. A risk exists, however, that decision-making could be appropriated by small groups of influential users to the detriment of vulnerable groups. Efforts should therefore be made to empower and encourage participation of the most vulnerable groups.

[17] Examples are from Frank Rijsberman, 2004, "The Water Challenge", prepared for the Copenhagen Consensus Project, revised 3 May. The United States NGO that helped develop the treadle pump estimates that roughly 1.2 million have been sold in Bangladesh.

[18] Projected water scarcity by 2025: International Water Management Institute, Sri Lanka.

[19] See H. Bjornlund and J. McKay, 2002, "Aspects of water markets in developing countries: experiences from Australia, Chile and the United States: *Environment and Development Economics*, vol. 7.

[20] Water-borne diseases from fecal contamination of surface and groundwater continue to be a major cause of mortality and morbidity in the developing world. Diarrhoea and cholera alone kill an estimated 3 million people a year in developing countries, the majority children under the age of five.

[21] One good example of regional cooperation in Asia and the Pacific is the Typhoon Committee, which covers east and south-east Asia and the North Pacific. It was jointly established in 1968 under the auspices of the Economic and Social Commission for Asia and the Pacific and the World Meteorological Organization to coordinate efforts in predicting and monitoring typhoons. The Committee provides advice on improvements to forecasting and community preparedness and prevention activities, promotes research and training, and facilitates identification of funding sources.

[22] Water accounting methodology provides decision makers and users with a basis for informed and cross-sectoral decision-making. It focuses on the interactions between two systems (the user's system represented by the economy and the water resource system) within a reference territory that can be a country, a region or a river basin.

[23] Global Water Partnership and World Water Council, *Financing Water for All: Report of the World Panel on Financing Water Infrastructure*, 2003. Estimates cover drinking water, sanitation and hygiene, municipal wastewater treatment, industrial effluent, agriculture and environmental protection.

[24] Statistics are from the Organization for Economic Cooperation and Development/Development Cooperation Directorate Creditor Reporting System database.

[25] Cambridge Economic Policy Associates, "Funding Johannesburg — Beyond the Rhetoric: Delivering the Water and Sanitation Targets", discussion paper, 2003.

[26] http://www.attra.org/guide/dwsrf.htm.

[27] Inter-American Development Bank, "Municipal Bond Market Development in Developing Countries: The Experience of the US Agency for International Development", Finance Working Papers, Washington, D.C., 1997.

[28] Microcredit and revolving credit funds have proven to be important instruments of poverty alleviation worldwide. Experience shows positive impact of these efforts in terms of asset acquisition by communities and individuals.

[29] http://english.people.com.cn/200207/04/eng20020704_99086.shtml.

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Sanitation: policy options and possible actions to expedite implementation

Report of the Secretary-General

Summary

The sanitation target contained in the Plan of Implementation of the World Summit on Sustainable Development (Johannesburg Plan of Implementation) represents a strong political commitment of national Governments to reduce significantly, with the support of the international community, the proportion of people who do not have access to basic sanitation. Sanitation is beginning to be recognized as a national development priority that needs to be supported by adequate policies and budgetary allocations. Essential investment in sanitary facilities and waste-water treatment, as well as support for capacity-building and technology transfer, is likely to require the mobilization of sizeable additional resources. The mobilization of additional resources is also important so that water and sewerage utilities are able to upgrade existing services and to extend them to unserved populations. Giving small-scale service providers easier access to credit and service contracts can contribute towards expanding coverage. Adoption of low-cost technology options allows expanded coverage to broad segments of society. Effective management of waste water and water quality concerns can be achieved through strengthened monitoring systems, regulatory mechanisms and enforcement capacities. Greater community involvement, particularly of women, in water and sanitation management can promote simple technology design for easy maintenance, facilitate cost recovery and help ensure equitable access. Research on and demonstration of different sanitation options, particularly those that treat nutrients as a resource to be reused, can assist communities in selecting designs appropriate to their culture.

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I. Introduction

1. At its twelfth session, the Commission on Sustainable Development reviewed the state of implementation of the goals and targets in the thematic areas of human settlements, water and sanitation as contained in Agenda 21, the Programme for the Further Implementation of Agenda 21 and the Plan of Implementation of the World Summit on Sustainable Development (Johannesburg Plan of Implementation). The Commission identified constraints to, and continuing challenges for, the implementation of these goals, including the Plan's target on access to basic sanitation.

2. Building on the outcome of the twelfth session of the Commission, the present report presents policy options and possible actions to address the constraints and obstacles to making progress on implementing the goals and targets related to sanitation. Individual countries will need to assess for themselves which of the policy options and possible actions would help them advance implementation, based on their own specific conditions and needs. The report provides a point of departure for the discussions at the Intergovernmental Preparatory Meeting, the outcome of which will be considered by the Commission at its thirteenth session.

3. The present report is based on data and information drawn from various sources, including but not limited to national and regional information, the United Nations system and other international organizations, and major groups and networks. UN-Water,[1] the United Nations inter-agency coordinating mechanism responsible for following up the Summit and the Millennium Development Goals in the areas of water and sanitation, provided essential inputs to the report.

4. The present report should be read in conjunction with the other reports of the Secretary-General dealing with freshwater and human settlements, in view of the interlinkages which exist among these major themes and the cross-cutting issues which are common to them all.

II. Expanding access to sanitation

5. In 2004, the Joint Monitoring Programme for Water Supply and Sanitation[2] issued a review of progress in meeting the access targets in water and sanitation. The update indicates that, from 1990 to 2002, global sanitation coverage rose from 49 per cent to 58 per cent of the world's population, with over 1.0 billion people gaining access during the period. Despite such progress, there were still over 2.6 billion people who lacked access to improved sanitation. The previous estimate was 2.4 billion. To meet the target of halving the proportion of people without access by 2015, taking into account population growth, an additional 1.9 billion people will need to be served — 1 billion in urban areas and 900 million in rural areas.[3] If the 1990-2002 trend continues, however, the world will miss the sanitation target by more than 500 million people. Close to 2.4 billion people would still be without improved sanitation in 2015, almost as many as there are today.

6. The planning and provision of sanitation services are often hampered by inadequate policy integration at the national level. Successful sanitation programmes are generally found where sanitation is recognized as a national development priority, with clear policies, budgets and coordination within Governments, notably among agencies responsible for water, health, environment,

education, finance and urban and rural development. Integration of sanitation into national sustainable development and poverty reduction strategies and integrated water resources management plans can promote improved sanitation, hygiene and health conditions. The rural environmental sanitation programme in Thailand that has been incorporated into the national economic and social development plans over the last 40 years,[4] the Ministry of Prevention, Public Hygiene and Sanitation of Senegal[5] as well as the "total sanitation campaigns" introduced in west Bengal[6] and specific locations in other South Asian countries provide good examples in that regard. Designating a specific institutional focus responsible for sanitation concerns at national level would allow for more coherent policy development, budgeting and implementation.

7. A rapid assessment of the current status and needs for sanitation and wastewater treatment in urban, peri-urban and rural areas can be carried out more easily where sanitation programmes and strategies are integrated into national priorities. Such assessments better facilitate the setting of appropriate benchmarks for meeting the commitments of the Johannesburg Plan of Implementation over the next 10 years. United Nations agencies or regional development banks can assist in conducting these rapid assessments.[7] Governance arrangements that incorporate ongoing monitoring and evaluation of access to and use of sanitation facilities can lead to more effective sanitation programmes by providing critical information to policy makers.

8. Sound decision-making and efficient allocation of resources for implementation of sanitation programmes can be enhanced by coordination with local authorities, community organizations and the private sector. Programmes that bring together all concerned institutions in a collaborative and coordinated fashion have been shown to have a higher chance of success. In sub-Saharan Africa, for example, the Ministerial Council on Water specifically noted that sanitation policies were crucial for their programmes to address the AIDS pandemic.[8]

9. Once the needs for sanitation are determined, different options in terms of costs and level of service can be considered and government efforts can be focused on the most cost-effective interventions that reach the largest number of people. Developing and testing low-cost solutions and concentrating on a few important but manageable sanitation challenges first (whether small and medium-sized towns, schools and/or public facilities) can yield early measurable improvements. Early improvements are helpful in building support for current and future policy options and programmes.

A. Access in urban areas

10. Since almost all future population growth will take place in the cities of the developing world, new sanitation approaches for urban areas are urgently needed. The situation is particularly serious in informal settlements, where coverage is extremely low and untreated human waste is contaminating the water supply and the environment, with severe impacts on human health.

11. On-site sanitation facilities, usually latrines, can be an important option for informal urban settlements in developing countries (see sect. II.B below on access in rural areas). Most of the relevant policies and programmes are applicable to both rural and urban areas unserved by sewers or other public facilities.

12. Where on-site solutions are not possible due to high population density or because of soil or groundwater conditions, large investments may have to be mobilized to cover conventional trunk sewers, feeder collection systems and wastewater treatment facilities. Municipal or national Governments generally have to carry the investment costs. However, estimates of the negative impact on public health and productivity resulting from the release of untreated sewage into the environment would seem to justify such investment.[9]

13. Public utilities most commonly build, operate and maintain urban sewer systems, while also providing water services. Accountable and efficient water and sanitation utilities are therefore key to service delivery. The quality of sanitation services can be enhanced and the useful lives of sanitation facilities extended by good operation and maintenance practices.

14. Utilities that consult with stakeholders, including the urban poor and residents of informal settlements, on key issues affecting community sanitation services will be better able to meet customers' water supply and sanitation needs, and are more likely to be able to collect fees to cover their costs. Local community involvement in sanitation planning and implementation allows for a fuller accounting of local conditions and preferences in selecting among technology and service options.

15. Governments may encourage municipalities and utilities to select lower-cost solutions than conventional sewer systems, such as condominial sewers, pioneered in Brazil, which use shallow feeder networks, with only one main sewer connection per block. A condominial system differs from conventional sewerage in that it relies heavily on user participation and can be introduced on a step-by-step or modular basis. While condominial sewerage does not conform to a hard set of technical standards, it fully incorporates the means and preferences of the target group in order to ensure the feasibility and sustainability of the system. Households pay lower connection fees and service rates because they contribute to the installation and maintenance of the system. The condominial system operator can recover a substantial portion of the initial investment in the short term from the connection fees, while cost recovery for the mains network can be obtained over the longer term from the water rates.[10] Users have a common interest in ensuring that the local system functions properly and in performing proper maintenance throughout.

16. As in Bangkok, urban sewer networks can be divided into several smaller systems serving different zones, each with its own collection and treatment. Each zone-level project is technically and managerially simpler than a city-wide project, and the smaller projects allow for a more affordable phased investment programme. However, these advantages would need to be weighed against the economies of scale of large plants.[11]

17. Policies and programmes to promote communal toilet facilities as an alternative to on-site latrines can improve sanitation in crowded public areas, such as markets or bus and train stations, as well as in densely crowded settlements. Well maintained community blocks provide the same health and environmental benefits as on-site facilities, assuming consistent use. A community toilet block programme in Mumbai, India, for example, is based on a partnership between the municipality and communities, in which the municipality provides the initial capital while community groups take full charge of operation and management. Communities recover costs through user charges designed to be affordable for all.[12]

18. An expansion in sanitation services within urban areas can be encouraged through the organization of participatory training on community-based management of water and sanitation schemes. Involving local communities directly in the operation and management of community toilet facilities has greatly expanded sanitation coverage in Addis Ababa, for example. An NGO-run programme assigns a group of families to manage a block of toilets, with each family responsible for maintaining its assigned latrine.[13] Community toilet blocks in Kano, Nigeria, have generated employment for private operators, who pay a small fee to operate public toilets and are responsible for collecting user fees, cleaning and maintaining the facilities.[14]

19. Ecological sanitation, with human wastes recovered for use as fertilizer, can be particularly cost-effective for urban communal facilities in areas where urban agriculture is widespread, provided that proper procedures for treating and using the fertilizer are followed to prevent the spread of disease. Ecological sanitation is being used in urban areas of China, South Africa, some northern European countries and elsewhere.[15]

20. In urban as well as rural areas, essential sanitation services are provided by small-scale service providers, often operating in the informal sector, who construct and maintain latrines, septic tanks and local sewerage connections, and install toilets and plumbing. Efforts can be made to encourage and assist small-scale providers to invest in improving and expanding their services, for example through the provision of microcredit, with repayment procedures tailored to their needs.[16] Microcredit schemes can also permit individual households to invest in on-site sanitation facilities as part of home improvements.

21. Assisting small-scale providers to become part of the formal sector can help them to gain readier access to credit and to plan for future expansion. Including them in the regulatory system can also improve the safety, performance and reliability of the systems they operate. Reducing administrative obstacles to small providers can also help. In Dar es Salaam, the city commission responsible for sanitation encouraged entrepreneurship and employment generation by deregulating pit-emptying services in an effort to improve public health after a cholera outbreak. After four years, competition among private operators had reduced the cost of the pit-emptying service by 50 per cent.[17]

22. Research on and practical demonstration of low-cost effective on-site sanitation technologies for use in urban and peri-urban areas have been effective in providing wider choices for urban dwellers in many African cities.

B. Access in rural areas

23. As serious as the situation is in urban areas, access to sanitation services in rural communities is even more problematic: only 31 per cent of rural inhabitants in developing regions (compared with 73 per cent of urban dwellers) are estimated to have access to any type of improved sanitation. Some 2 billion of the 2.6 billion people currently without access to improved sanitation live in rural areas.[18]

24. Implementing rural sanitation programmes can be a logistical challenge, particularly in ensuring availability of materials. One approach that has proven successful is for a government, through a specialized agency, to provide guidance

and support through ongoing technical assistance, ensuring availability of parts and services for maintenance at a sub-district level, and training local service providers in both technical and business matters. A cooperative approach that involves local authorities provides additional support. Local authorities are well situated to provide continuity and follow-up in maintaining sanitation facilities and services, promoting good hygiene practices and raising funds to support public facilities and on-site sanitation for low-income households.

25. In west Bengal, India, and elsewhere in South Asia, "total sanitation campaigns" involve a network of sanitation support facilities (rural sanitary marts and production centres) that supply hardware and supplementary services related to the provision, installation and maintenance of sanitation equipment. They also help to expand employment opportunities for masons and other craftspersons. Such facilities can be operated publicly and still provide opportunities for small-scale entrepreneurs and private businesses. In the case mentioned above, the facilities do not receive a subsidy and still make a small profit.[19]

26. Many rural sanitation programmes in developing countries concentrate on promoting and implementing on-site sanitation technologies which are culturally, economically and geographically appropriate. These generally depend on household investment in, and maintenance of, on-site facilities, most commonly latrines in low-income communities. The domed slab latrine, the ventilated improved pit (VIP) latrine, pour-flush toilets, composting toilets and ecological sanitation are examples of technologies or approaches that have been promoted and widely implemented, with varying degrees of success. Community engineers can be encouraged to develop local designs for all varieties of toilets, for use inside or outside the house, with plastic or thatched roofs, with concrete ring and slab or other locally available and affordable materials.[20]

27. Exchange of information and transfer of appropriate low-cost technologies and best practices in various countries can be promoted through technical training, simple manuals and capacity-building, with support from international and bilateral development agencies. Selection by the national sanitation agency, in consultation with other concerned organizations, of one or more standard designs for sanitation facilities can facilitate expansion of access. In Zimbabwe, the VIP latrine has been the sanitation technology of choice since the mid-1970s because it is clean, odour-free and cost-effective compared to ordinary latrines. More than 500,000 VIPs have been built in Zimbabwe over the last 25 years.[21] Lesotho increased sanitation coverage from 20 per cent in 1981 to 53 per cent in 2001 by promoting VIP latrines through community participation, education, private-sector involvement and builder training.[22] Many women were trained as latrine-builders and the additional income earned improved their status and contributed to poverty alleviation. In one region of the United Republic of Tanzania, technical training in latrine construction is provided to one person in each village, who constructs the slab for individual farmers, who in turn cultivate the latrine builder's fields under a barter arrangement.

28. In these and other cases, management is decentralized to the village level through village water or sanitation committees, which are often mandated to have a minimum representation of women. In one health district of Lesotho, the village water committee elects a "water minder", who is given the tools for the maintenance of the water system and the latrines. A maintenance fund is collected from villagers and administered by the water committee. Up to 90 per cent of the water minders

are women. Villagers tend to elect women because they have wide experience with water and sanitation, are often more readily available, and are most directly involved in matters of family health and hygiene.[23]

29. Ecological sanitation (ecosan) latrines may provide a valuable alternative to other types of on-site sanitation for the rural poor, particularly those living in arid regions or on unproductive land where fertilizer is needed. The nutrients derived from excreta can help increase the productivity of agricultural land and thus aid in poverty reduction. Many different types of trees and plants can be grown more quickly when sown on top of or close to a pit. Ecosan technologies have been successfully implemented recently in Mozambique and Zimbabwe.[24]

30. Given the slow rate of recent progress in extending rural sanitation in sub-Saharan Africa, a dramatic escalation of effort, accompanied by a deliberate commitment by donors to target the least developed countries, will be needed if this region is to meet the Johannesburg Plan of Implementation target. An example of such a commitment is the rural water supply and sanitation initiative of the African Development Bank, which aims to expand rural water and sanitation coverage in sub-Saharan Africa to 80 per cent by 2015. One promising option for rapid expansion of access would be a franchise-type approach on a massive scale, whereby a "mother" company would spawn many small franchises at the community level, similar to a programme in Indonesia. This could be carried out by NGOs and small service providers, supported by district offices that can provide training and technical support.

III. Promoting sanitation and hygiene education

31. Surveys have shown that, where households and communities are aware of the health and economic benefits of sanitation and hygiene, there is a greater willingness to pay for improved facilities and services and to alter hygiene behaviour.[25] Improved sanitation programmes are thus more likely to be successful where communities understand the benefits of good hygiene practices, such as regular hand-washing, and accept relevant technologies or products as appropriate to their culture.

32. Public awareness-raising programmes, designed in consultation with communities, require culturally sensitive health education for men and women, boys and girls. Consultations can involve national and local governments, public utilities, private service providers, NGOs, community associations, women's groups, educators and users of different types of sanitation services. Understanding the sanitation and hygiene concerns, preferences, practices, and ability and willingness to pay of both men and women can help in the design of cost-effective sanitation and hygiene facilities, services and campaigns,[26] avoiding under-used or badly maintained facilities and waste of scarce financial resources.

33. Civil society organizations could be encouraged to contribute to raising hygiene awareness. In Zimbabwe, for example, the NGO Applied Health Education and Development has promoted hygiene through the formation of voluntary community health clubs, which have shown significant results in terms of improved health knowledge and hygiene behaviour among club members.[27] In Bangladesh, the village education resource centre helps local people to understand the extent and impacts of environmental pollution in their own communities and then to construct

appropriate sanitation systems to solve the problem.[28] In Kerala, India, community-based socio-economic units have been implementing local water and sanitation projects since 1988 through community participation, from planning to monitoring.[29]

34. A focus on gender differences is of particular importance with regard to promoting hygiene education and sanitation facilities. Women play a crucial role in influencing the hygiene behaviour of young children, and men can also serve as role models in sustaining changes in habits. The success and effective use of water and sanitation facilities will depend on the involvement of both women and men in selecting the location and technology of such facilities.

35. The provision and maintenance of improved sanitation facilities in schools, along with hygiene education in school curricula, are important elements of hygiene campaigns.[30] A global pilot project including Burkina Faso, Colombia, Nicaragua, Nepal, Viet Nam and Zambia has provided limited funding for physical improvements in sanitation facilities in 10 to 20 schools per country, but it has helped catalyse resource mobilization for water and sanitation improvements in more than 11,000 schools. A pilot project in Malawi has evolved into a programme aiming to reach one quarter of the country's schools. In Ethiopia, NGOs, multilateral and bilateral development organizations have united around a common aim to improve water and sanitation in 60 per cent of the primary schools by 2007.[31]

36. Schools and children can be targeted for hygiene education campaigns because children and youth not only adopt new practices quickly but can also act as agents of behavioural and attitudinal change in their families. Latrines in schools and public places that are separated by sex provide privacy and dignity for girls and women. In Bangladesh, a school sanitation project with separate facilities for boys and girls has helped boost girls' school attendance by about 11 per cent per year on average from 1992 to 1999.[32]

37. Major international initiatives focusing on sanitation and hygiene have been important tools in some countries for national planning, policy-making, budgeting, and implementation of sanitation goals. The international participatory hygiene and sanitation transformation (PHAST) initiative enables communities to identify for themselves the main faecal-oral contamination routes of disease and how to block them. PHAST has been field tested in a number of African countries in both rural and urban settings.[33]

38. Successful high-profile international campaigns that focus on sanitation, such as the school sanitation and hygiene education[34] and the Water, Sanitation and Hygiene for All[35] campaigns, can support national efforts. Effective national campaigns, such as those in South Africa, India and Zimbabwe, can be used as models for other countries. Strong and clear messages from sanitation professionals, political leaders, popular celebrities, artists, schools and the media about the benefits of proper sanitation can help influence behaviour and mobilize public support for investments to improve sanitation. The United Nations "Water for Life" Decade (2005-2015) and the United Nations Decade of Education for Sustainable Development (2005-2014) offer opportunities to integrate sanitation and hygiene education with water supply in a major international effort to improve access to water supply and sanitation in all countries, in particular in developing countries.

IV. Waste-water treatment and reuse

39. The present report addresses domestic and municipal waste-water treatment and reuse. It does not deal with industrial waste water. Most of the domestic waste water generated in developing countries is discharged into the environment without treatment, contaminating downstream water supplies used for drinking water, irrigation, fisheries and recreational activities. Waste-water treatment and reuse is an issue primarily in urban areas with sewerage systems. In rural areas and urban areas with on-site sanitation facilities, such as latrines or septic tanks, waste water goes into the ground, where it is filtered and purified provided that the latrine or other disposal site is sufficiently far from sources of drinking water.

40. Waste-water treatment is a great challenge for developing countries because of its high costs and the technical skills required for operation and maintenance. Experience shows that waste-water treatment and reuse is more likely to be funded in national budgets if integrated with national integrated water resources management plans or with environmental policies. Some countries, such as Mexico,[36] Brazil, Chile and Costa Rica, are moving in this direction.

41. An increasing number of countries, particularly in water-scarce regions, are beginning to view waste water and sewage as a resource to be reused rather than as waste to be disposed of. With proper procedures, treated waste water can be reused in agriculture — although generally not directly on food crops — as well as for other uses. Reuse of treated urban waste water is widely practised in many countries. In Egypt, the Government has implemented a pilot project to grow timber in the desert by reusing waste water from nearby urban communities.[37] In Mauritius, the Government installed a series of sewer networks and waste-water treatment plants that allowed for the safe reuse of waste water for irrigation, mainly for sugar cane production.[38] In Mexico, waste water from a low-tech, low-cost treatment plant in Tijuana irrigates a large green area surrounding the facility, called Ecoparque, reducing the high level of untreated effluent that previously flowed into the Tijuana River.[39]

42. Detailed analyses of the options for waste-water management in the local context can be used to identify the most cost-effective solutions. There are a variety of technology options for waste-water treatment, ranging from simple, small-scale and inexpensive to large, complex and costly.[40] The choice will depend on population density, land use patterns, environmental conditions, climatic conditions, the preferences of the population and resources available. In high-density cities, large treatment plants are generally appropriate because they achieve substantial economies of scale, but they also require large investments.

43. Low-technology and low-cost waste-water treatment systems are most cost-effective in warm, humid climates where sufficient land is available for extensive natural or artificial waste-water treatment facilities. Such processes are generally slow and suitable for low volumes, relying on such natural elements as sunlight, heat, sedimentation, ultraviolet radiation and acidity to destroy pathogens, oxidize organic matter and remove other contaminants. In general, they are easier to operate and maintain than conventional waste-water treatment plants and do not require chemical inputs. They can be very low-cost solutions where inexpensive land is available but may be inefficient in hot, dry climates due to high evaporation.

44. Waste-water treatment and storage reservoirs offer the advantage of both treating the waste water and storing it until it is needed in the growing season or dry season. They generally include retention and treatment in an anaerobic pond before storage in the reservoir of usable water.

45. A relatively new technology using effective micro-organisms (EM) was developed in Japan and is now being used in a number of countries to increase the efficiency and effectiveness of waste-water treatment, either in large urban treatment plants or in constructed or natural low-tech treatment systems. EM utilizes a liquid mix of three types of naturally-occurring micro-organisms — lactic acid bacteria, yeasts and phototrophic bacteria — which create conditions to support each other and reduce harmful pathogens and other pollutants.[41]

46. In summary, a wide range of sanitation and waste-water treatment technology options is available, including:

(a) Sanitation systems that reduce waste water and pollution on-site through dry sanitation latrines or ecosan systems and more sophisticated closed-loop ecological sanitation alternatives, producing treated solid wastes and concentrated liquids for use as fertilizer;

(b) On-site or local waste-water treatment systems, including septic tanks and local mini-containers or tanks, discharging treated waste water into the soil or other ecosystems for further natural purification;

(c) Simple off-site treatment of waste water using the natural purification capacity of soil, vegetation and water bodies that hold the waste water long enough to allow solids to settle out and organic material to be oxidized;

(d) Simple artificial systems, such as constructed oxidation ponds, constructed wetlands, sand-filtration beds, bioremediation plants and aquaculture systems, designed to settle or filter out the solids and oxidize the organic materials;

(e) Urban sewer systems connected to large centralized waste-water treatment plants, including primary, secondary and tertiary treatment processes.[42]

V. Strengthening monitoring systems

47. Effective public policies and programmes to improve sanitation require accurate and up-to-date information on sanitation facilities, sanitation and hygiene practices and waste-water discharge. Monitoring and evaluation, where possible on a sampling basis and coordinated with monitoring of water supply and quality, should assess the convenience, reliability, sustainability and adequacy of sanitation services. Monitoring is also needed of the public health impacts of sanitation programmes, in particular of the impacts of new technologies and approaches compared with more traditional systems. Surveys of the willingness to pay for sanitation facilities and services are also important for determining charges and subsidies and for financial planning.

48. A sample survey approach can be cost-effective for assessing the impact of different sanitation investments on different segments of society (e.g., by gender and income groups). To promote participation in such efforts, collected data and analysis could be made conveniently available not only to government agencies and international organizations but also to NGOs, civic groups and the public at large.

49. The UNICEF/WHO joint monitoring programme methodology and data collection for estimating sanitation coverage could be strengthened and supported to provide better global, regional and national information to assess progress towards the World Summit on Sustainable Development target. National monitoring networks and data-collection capabilities could benefit from capacity-building that could also help achieve greater consistency with the Joint Monitoring Programme methodology. Governments could work together with water utilities, private companies, local authorities and community organizations to create, strengthen and maintain monitoring networks.[43]

VI. Meeting the financing requirements for sanitation

50. Estimates of the total cost of meeting the 2015 sanitation target in developing countries amount to an additional $10-20 billion per year, based on hygiene promotion and low-cost facilities.[44] Estimated investment requirements for wastewater treatment using conventional treatment plants are a multiple of that (over $50 billion), but wider use of simpler treatment methods would lower those costs.[45]

51. Public and private domestic capital is a principal source of finance for improved sanitation, although many challenges and problems remain in mobilizing such resources in poor countries. External finance can provide important additional resources for funding sanitation needs.

52. The economic, social and environmental benefits from improved sanitation and hygiene range from $3 to $34 per $1 invested, mainly as a result of reduced mortality, improved health and reduced costs of illness, as well as higher productivity.[46] The fact that the benefits extend well beyond the individual household points to a need for significant public investment in sanitation facilities.

53. For low-income countries with low levels of sanitation coverage, meeting the target may require that public spending is focused on basic, low-cost sanitation facilities for those currently without access, leveraging household and community investments. In cities, public investment can concentrate on common infrastructure, such as trunk sewers and treatment plants, promoting education and information on hygiene and sanitation in schools and the media, financing public and school sanitation facilities, and providing targeted subsidies to poor households to finance sewer connections or up-front costs for on-site sanitation.

54. Surveys to assess the willingness of households to pay for sanitation facilities and services can support the development of policies to mobilize the best combination of public and private resources and make most effective use of the public resources available.

55. In rural areas and urban informal settlements where on-site sanitation is the main option, much of the investment, including labour, can come from the households themselves. Those household investments can be promoted and supported by public policies and programmes to facilitate and subsidize access to materials based on standardized designs, technical advice on facility construction and maintenance, provision of hygiene education, support for community organizations promoting improved sanitation, training of local entrepreneurs in construction and maintenance, and access to credit for households and small entrepreneurs.

56. In a number of countries, microcredit programmes, which were originally intended for investments in income-generating activities, have been expanded to include housing improvements such as water supply and sanitation. In other countries, microcredit or other financing programmes dedicated to housing improvement have been established. In urban informal settlements, these programmes are apt to be most effective when accompanied by measures to improve tenure security (see report of the Secretary-General on human settlements (E/CN.17/2005/__)). Seed capital from Governments or international lending agencies can be used to create credit schemes or revolving funds directed at water, sanitation and other household and community improvements, including for lending to small-scale service providers. Mainstream banking institutions can expand access to credit by allowing for non-traditional forms of collateral based on social self-help groups and shared liability.[47]

57. In formal and densely populated urban areas requiring sewerage systems and waste-water treatment, national and municipal governments generally take responsibility for investments and operation and maintenance, financed from some combination of general taxation, charges for water services, loans and international assistance. Investments by municipal governments can be supported by policies to give them authority to raise money by taxation or borrowing, and to facilitate borrowing through municipal development banks or loan guarantees (for further consideration of municipal finance, see report of the Secretary-General on human settlements (E/CN.17/2005/__)).

58. Cost recovery for urban sewerage and waste-water treatment is most commonly achieved by incorporating sewerage charges into the water bill. Such charges can be levied either on a flat charge per household or on the basis of the volume of water consumed, which requires a water meter for each household. With volume-based charges, increasing block rates allows substantial cost recovery from larger users, while ensuring that the services are affordable for low-income households that consume basic amounts of water for drinking, cooking, hygiene and sanitation. Pro-poor policies can, as in South Africa, provide a basic amount of water free to every household, with a simple and inexpensive system for limiting consumption to that volume (see E/CN.17/2005/2).

59. Cost-recovery systems for water and sanitation often include one-time connection charges, which can be a major financial obstacle for poor households. To enable poor households to afford sewer connections, connection costs can be included in water bills, prorated over time or provided on credit, preferably with a targeted subsidy.

60. Public-private partnerships can play a role in financing and developing sanitation infrastructure in some circumstances. Efforts to mobilize large-scale private-sector investment for urban sewerage and waste-water treatment systems in developing countries have been limited, and have mainly occurred in the context of public-private partnerships in large-city water supply systems, with a return on the investment in sanitation derived from sanitation charges added to the water bill. Where the private sector is involved in developing and managing water, sewerage and waste-water treatment services, effective government oversight is required, both to negotiate a contract that meets the requirements of the Government and the public and private providers, and to monitor operations to ensure that the terms of the contract are fulfilled (see also E/CN.17/2005/2).

61. Urban sewer systems often collect waste water not only from households and other municipal sources but also from industry. Industrial pollution can substantially increase the technical difficulty and the cost of waste-water treatment. The burden of waste-water treatment on public finances can be reduced by cost-recovery policies for industry, including volume-based charges and charges for specific effluents, and by requiring and/or assisting industry to reduce pollution, either through cleaner production processes or on-site waste-water treatment.

62. For many developing countries, particularly those in sub-Saharan Africa and other least developed countries, international assistance will be required to meet the 2015 sanitation target. These countries currently receive less assistance per capita than many other developing countries even though they face a greater financial burden in meeting the sanitation challenge. In view of the limited possibilities for financing sanitation investments through cost recovery for sanitation services, financial assistance to these countries for the implementation of their sanitation programmes could be considered in the form of grants.[48]

63. Mainstreaming sanitation concerns in national sustainable development and poverty reduction strategies could help mobilize international assistance for sanitation because those strategies are often used as a basis for defining assistance policies by both multilateral and bilateral agencies, particularly with respect to debt reduction and the enhanced heavily indebted poor countries initiative.

64. Improved donor coordination and harmonization of assistance modalities could improve the quality and effectiveness of assistance, particularly by avoiding fragmentation of efforts with a diversity of technologies, resulting in uneven coverage and difficulties in maintenance. Coordination of international assistance in water and sanitation can be enhanced through UN-Water and regional coordinating mechanisms. Consolidating the dispersed efforts of existing initiatives in water and sanitation, and ensuring the participation of multilateral financing institutions, would improve both the flow and impact of international assistance. Such coordination could be incorporated into plans for the International Decade for Action: Water for Life, 2005-2015.

65. The number of major international water and sanitation initiatives launched following the World Summit on Sustainable Development indicates a renewed interest and commitment by donors to the water and sanitation sector. The rural water supply and sanitation initiative of the African Development Bank has been mentioned above. Also, the African Water Facility has been created to channel loans and grants to implement projects proposed by local utilities, authorities and partnership networks.

VII. Moving ahead: towards a framework for action

66. A range of policy options and possible actions to overcome the constraints and obstacles impeding implementation of the goals and targets contained in Agenda 21 and the Johannesburg Plan of Implementation relating to sanitation have been outlined above. They are by no means exhaustive. Given the variety of circumstances and priorities across countries and even across regions within countries, there is clearly no one-size-fits-all solution. Governments will want to elaborate their own strategies, policies and programmes, learning from each others' experience while also adopting new methods and innovative approaches.

67. **National Governments and local authorities bear principal responsibility for reducing the proportion of their people without access to sanitation and for promoting sanitation and hygiene education. They also shoulder the burden for securing finance for public investments in sanitation and waste-water treatment. Strong political commitment has been identified as central to meeting these responsibilities, which can be demonstrated at the national level in a number of ways. Recognizing sanitation as a national development priority in sustainable development and poverty reduction strategies, supported by adequate budgetary allocations and realistic time frames for targeted policy interventions, are important steps. Providing sanitation with an institutional "home" within government can facilitate strengthened networking among national and local authorities responsible for water, sanitation, health, environment, education and finance. This should result in improved coordination and more focused actions to implement sanitation programmes and projects. Political commitment can also be demonstrated through policy interventions and financial means targeted at the most pressing sanitation problems in rural areas, slums and informal settlements.**

68. **Most developing countries cannot achieve their sanitation goals and targets without the cooperation and support of the international donor community. Donor countries can assist the developing countries by allocating higher portions of official development assistance (ODA) to sanitation programmes, providing a higher proportion of financial assistance in the form of grants and improving donor coordination in implementation efforts. Capacity-building, education and training could be better targeted in such areas as institutional development, tariff and subsidy schemes, waste-water management, regulatory reforms and financial management. The importance of transferring and diffusing low-cost sanitation and waste-water treatment and reuse technologies has been identified.**

69. **Governments have at their disposal a number of policy options to expand access to sanitation in urban and rural areas. At the household and community levels, financial and technical support could be aimed at efforts to implement low-cost sanitation solutions or to subsidize up-front sanitation installation costs for poor families in rural areas, slums and informal settlements. Financial and technical assistance can be made available for sanitation support centres in rural areas that provide hardware and engineering services related to the installation and maintenance of sanitation equipment. Facilitating access for small-scale providers to credit and engaging them in public-private partnerships are important options, as are providing incentives to households for constructing on-site facilities and ensuring active participation of women in the design of sanitation solutions. Technical assistance to rural communities in the design of sanitation facilities, technology transfer and repair services can also be effective. Other policy options include those that target training needs, such as for decision makers and project managers, on evaluating the cost-effectiveness and appropriateness of sanitation options, as well as participatory training on the community-based management of sanitation schemes.**

70. **Sanitation and hygiene programmes are more likely to be successful if people are aware of the health and economic benefits arising from improved sanitation and hygiene. Measures at the national, local and community levels may include providing and maintaining gender-separated sanitation facilities at**

school premises and in public places. Public awareness campaigns on the linkages between sanitation, hygiene and health can be effective in changing behaviour. The inclusion of hygiene education in school curricula can be promoted, as can the work of NGOs that undertake sanitation hygiene education and awareness. The formation of local sanitation clubs can also be encouraged.

71. In the area of waste-water treatment and reuse, every effort is needed to develop and apply low-cost, culturally appropriate solutions. Donor-supported policies and actions at the national and local levels can provide a framework for constructing decentralized or condominial sewerage systems or other low-cost alternatives and enhancing technical and administrative skills for operating and maintaining waste-water treatment facilities. Such a framework could also encourage the use of proven approaches to waste-water collection and reuse for irrigation, environmental restoration, cleaning, toilet flushing, industrial processes and other uses with low health risks. The establishment of research partnerships between research and development institutions of developed and developing countries on low-cost waste-water treatment and reuse technologies could also be encouraged.

72. Meeting the sanitation goals and targets contained in the Johannesburg Plan of Implementation requires financial resources that cannot be mobilized alone from domestic public and private sources, in particular in sub-Saharan Africa and the least developed countries. Additional donor financial resources are needed, as is closer donor coordination. At the national level, financial resources can be mobilized in a number of ways. Reforms to water and sanitation tariff policies so as to permit greater cost recovery while better targeting subsidies to the needs of the poor provides one example. Funds for large investments in urban sewer systems and waste-water treatment plants can be raised from a mix of public revenues, user fees, ODA grants, concessional and commercial loans, bond issues, and, in some instances, private equity investment. Seed capital from national and local development banks and international lending institutions can support the creation and expansion of microcredit schemes and community revolving funds. Household and community investments can be encouraged, for example, by addressing tenure insecurity in informal settlements, facilitating access to and subsidizing materials, and providing technical advice on facility construction and maintenance.

73. Assisting developing countries in the implementation of the sanitation goals and target is an important part of the work of a number of United Nations agencies and other multilateral institutions. Their experience can be an important asset for developing country efforts to mobilize the necessary financial resources; build the capacities of decision makers and managers at the national and local levels; define well targeted sanitation and hygiene education and awareness-raising programmes; and monitor implementation. Greater cooperation and coordination among international agencies would enhance the coherence and effectiveness of initiatives.

74. While the sanitation challenge is daunting, there is reason for optimism. There is an increasing recognition on the part of Governments and the international community of the urgency of meeting the sanitation goals and

targets contained in Agenda 21 and the Johannesburg Plan of Implementation. Many of the solutions are well known to practitioners. Their implementation depends on the translation of the political commitments into action at all levels.

Notes

[1] The members of UN-Water are: FAO, IAEA, IFAD, ISDR, UNCTAD, UNDP, the Department of Economic and Social Affairs of the United Nations Secretariat, ECA, ECE, ECLAC, UNEP, ESCAP, UNESCO, ESCWA, UN-Habitat, UNHCR, UNICEF, UNIDO, UNU, WWAP, World Bank, WHO and WMO.

[2] See WHO/UNICEF/WSSCC, *Global Water Supply and Sanitation Assessment, 2000 Report* (New York, 2004).

[3] See WHO/UNICEF, "Meeting the MDG drinking water and sanitation target: a mid-term assessment of progress" (New York, August 2004).

[4] See Luong, T. V., O. Chanacharnmongkol and T. Thatsanatheb — "Universal sanitation in rural Thailand", *Waterfront*, No. 15.

[5] Ministère de la Prévention, de l'Hygiene Publique et de l'Assainissement; See http://www.gouv.sn/actualites/2004_564.rtf.

[6] M. N. Roy, "Role of local government in promoting sanitation for all: the case of West Bengal, India", Paper presented to the Global WASH Forum, Dakar, Senegal, 29 November-3 December 2004; see www.wsscc.org/dakar and http://ddws.nic.in/.

[7] The water and sanitation programme of the World Bank has started to implement Millennium Development Goals "road maps" to link water and sanitation plans with the Goals; they include a review of where the country is, consultation with stakeholders, implementation strategies and monitoring, and they focus on the poor.

[8] Fifth General Council meeting of the African Ministers Council on Water, 4-6 November 2004, Entebbe, Uganda.

[9] Albert M. Wright, "Toward a strategic sanitation approach: improving the sustainability of urban sanitation in developing countries", UNDP-World Bank water and sanitation programme; see http://www.wsp.org/pdfs/global_ssa.pdf.

[10] CAESB, The Water and Sewerage Company of Brasilia, *Condominial Sewerage Systems for the Federal District of Brazil* (Brasilia, 1998); see http://www.efm.leeds.ac.uk/CIVE/Sewerage/articles/condominial1.pdf.

[11] See Millennium Project Task Force on Water and Sanitation, interim report (2004).

[12] Case study: community toilets operation and finance in Mumbai, India; see www.globenet.org/preceup/.

[13] Water Utility Partnership for Capacity Building Africa, "Better water and sanitation for the urban poor: good practice from sub-Saharan Africa"; see www.wupafrica.org.

[14] Ibid.

[15] Country case studies can be viewed at http://www.ecosanres.org/Country%20Activities.htm.

[16] Some successful schemes have allowed people to repay on a weekly basis, which is more suitable for the poor who live day-to-day. Studies have also shown that the time spent and income lost due to travelling long distances to make repayments have made microcredit less attractive for many slum dwellers. Information on the International Year of Microcredit, 2005 can be found at http://www.yearofmicrocredit.org/.

[17] Emptying pit or septic tanks had been handled exclusively by the sewerage and sanitation department, but private businesses had also been operating without permits before the

commission began authorizing private operators. Following deregulation, eight operators applied for and received permits, indicating that pit-emptying was a profitable venture despite a strongly competitive market.

[18] See WHO/UNICEF, op. cit.

[19] http://www.wsp.org/publications/sa_marketing.pdf.

[20] Plastics, tin, bamboo, gas pipe, and plastic pans and sockets have been used extensively. Some households may want to choose costlier individual options. Wealthier people within villages have even constructed fancy, attached bathrooms and toilets.

[21] http://www.wsp.org/publications/af_bg_zim.pdf.

[22] The Government provides no subsidy of latrine costs, and has enabled the country to increase sanitation coverage from 20 per cent in 1981 to 53 per cent in 2001; see http://www.wsp.org/publications/af_bg_lesotho.pdf.

[23] Makepe, T., "Mantsonyane water supply and sanitation project: an overview of the project goals and objectives, including achievements to date" (Mantsonyane, Lesotho, St. James' Hospital, October 2004).

[24] http://www.ecosanres.org/PDF%20files/Kyoto/Main%20Features%20of%20EcoSan.pdf.

[25] See UNEP document UNEP/GCSS.VIII/INF/4; see http://www.eldis.org/static/DOC14717.htm.

[26] Traditionally, utility planners developed demand projections based on demographic and economic progress indicators. Projected demand for new services was used for project designs based on sewerage and treatment technologies commonly used in cities of Europe and the United States.

[27] Demand for sanitation increased, with 30 per cent of the new latrines in the country being constructed by members of CHCs. Similar groups have now been established in Sierra Leone, indicating that the approach can be replicated. See http://www.wsp.org/publications/af_bg_bf-zm.pdf.

[28] See Millennium Project, interim report of Task Force 7 on Water and Sanitation, February 2004; see http://w w.unmillenniumproject.org/documents/tf7interim.pdf.

[29] See T. Mathew, "New skills, new lives: Kerala's women masons", *Waterlines*, vol. 17, No. 1.

[30] In many parts of the world, it is essential that separate facilities be provided for girls and boys, particularly when girls have begun menstruating. Without separate facilities for girls and boys, many parents simply will not allow their girls to attend school.

[31] All of these examples come from the school sanitation and hygiene education programme supported by UNICEF and its partners. More information is available at http://www2.irc.nl/sshe.

[32] See UNICEF, *Sanitation for All*; see: http://www.unicef.org/wes/sanall.pdf.

[33] WHO, UNDP, WSP, "The PHAST initiative: participatory hygiene and sanitation transformation", a new approach to working with communities (Geneva, 1997).

[34] The school sanitation and hygiene education programme has been extended to more than 70 countries in the past five years; see http://www2.irc.nl/sshe.

[35] The Water Supply and Sanitation Collaborative Council has launched its Water, Sanitation and Hygiene for All campaign in over 70 countries; see www.wsscc.org.

[36] Mexico is building the Mexican Center for Water and Sanitation Training for operating agency personnel; Trinidad and Tobago has begun studies for its treatment plants.

[37] Since the early 1990s, 13 forests have been established, with a total planned area of 2,700 hectares: see UNEP, "Innovative practices: environmental dimensions of water sanitation and human settlements", paper presented at the eighth special session of the Governing Council/ Global Ministerial Environment Forum, Jeju, Republic of Korea, 29-31 March 2004.

[38] See UNEP, loc. cit.

[39] Martin Medina, "Low-tech option for wastewater treatment, water reuse and nutrient recycling", *Biocycle International* (October 2000).

[40] UNEP/GPA, jointly with WHO, UN-Habitat and the Water Supply and Sanitation Collaborative Council, developed 10 keys for local and national action on municipal waste water, as well as associated guidelines and a web-based knowledge base; see www.gpa.unep.org.

[41] Zimmermann, I. and J. Harrison, "Example of an integrated biosystem, incorporating effective microorganisms"; see www.wpi.edu/News/Conf/NEABC/Proceedings/ibozimmsummary.pdf and www.emtech.org.

[42] Information on primary, secondary and tertiary treatment can be found in document UNEP/WHO/UNHABITAT/WSSCC, at www.gpa.unep.org.

[43] The system of regulation adopted by the majority of South American countries is based on the English system of economic regulation, which sets prices to compensate for operation and maintenance costs, as well as for expansion and earnings on invested capital. Where there is not an adequate basis for comparison, regulators set prices by direct negotiation with the companies.

[44] See www.who.int/water_sanitation_health/wsh0404summary/en/; see also www.unep.org/GC/GCSS-VIII/K0470227%20INF4.pdf

[45] See E/CN.17/2004/5.

[46] Guy Hutton and Laurence Haller, *Evaluation of the Costs and Benefits of Water and Sanitation Improvements at the Global Level* (Geneva, 2004); see http://www.who.int/ water_sanitation_ health/wsh0404/en/.

[47] Financial institutions in Asia and Latin America have developed a particularly wide range of products, including consumer financing, housing loans, infrastructure loans (including for water and sanitation) and educational loans; See M. Mehta and K. Virjee, *Financing Small Water Supply and Sanitation Service Providers: Exploring the Microfinance Option in Sub-Saharan Africa* (December 2003).

[48] Naomi Foxwood and Joanne Greene, "Making every drop count: an assessment of donor progress towards the water and sanitation targets" (Tearfund, 2004); see also http://www.tearfund.org/uploads/documents/Makingevery%20dropcount.pdf.

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Report of the Secretary-General

Summary

Sustainable human settlements development requires a coherent and proactive policy approach to land use, housing, urban services, infrastructure and environment. While there are many examples worldwide demonstrating the impact of local policies and programmes on reducing urban poverty, faced with the prospect of further growth of slums and informal settlements, the challenge is to find solutions that work at both city and nationwide scales. Where slums and informal settlements host the majority of the rapidly growing urban population, sustainable urban development cannot be separated from slum upgrading and slum integration into the wider urban economy. The economic, social and environmental interdependence between rural and urban areas requires an approach to sustainable human settlements development that is both balanced and mutually supportive.

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I. Introduction

1. At its twelfth session, the Commission on Sustainable Development reviewed the state of implementation of the goals and targets in the thematic areas of human settlements, water and sanitation as contained in Agenda 21, the Programme for the Further Implementation of Agenda 21 and the Plan of Implementation of the World Summit on Sustainable Development (Johannesburg Plan of Implementation). The Chair's summary identified constraints, obstacles, and continuing challenges to the implementation of these goals and targets, including the Millennium Development target on slums. The focus of the present report is human settlements.

2. Building on the outcome of the Commission's twelfth session, the present report presents policy options and possible actions to address the constraints and obstacles to making progress in implementing the goals and targets related to human settlements, taking into account intergovernmental commitments made at the global level. Individual countries will need to assess for themselves which of the policy options and possible actions would help them to advance implementation, based on their own specific conditions and needs. The report provides a point of departure for the discussions at the intergovernmental preparatory meeting, the outcome of which will be considered by the Commission at its thirteenth session.

3. The present report is based on data and information drawn from various sources, including but not limited to the United Nations system, national and regional information, other international organizations and major groups and other sources as cited in the report. The United Nations Human Settlements Programme (UN-Habitat), the United Nations Environment Programme (UNEP) and the International Labour Organization (ILO), as well as the World Bank and the United Nations regional commissions provided essential inputs.

4. This report should be read in conjunction with the other reports of the Secretary-General to the Commission during its thirteenth session dealing with freshwater and sanitation, in view of the inter-linkages that exist among these major themes and the cross-cutting issues common to them all.

II. Housing, tenure security and urban land management

A. Housing the urban poor

5. In many developing countries and countries with economies in transition, the formal housing market, often owing to weak housing policies, does not generally meet the housing needs of the urban poor, forcing them into informal settlements with shelter conditions that violate land development regulations and housing construction codes. Rapid urbanization, economic growth and, in some cases, financial globalization have made land acquisition costs for building affordable housing prohibitive for the landless urban poor including new migrants from poorer rural areas, in many cities.

6. While in some countries publicly owned construction companies are still involved in building low-cost housing, in most the public sector has left the housing construction field to private companies. Housing is not a public good; its construction does not enjoy economies of scale. The housing construction business

is, in most countries, highly competitive. The most appropriate role for Governments in this sector is to facilitate access to housing by low-income households, particularly by supporting the development of financial institutions that provide financing for affordable housing. Government mortgage lenders are one option; other options include partial equity grants or targeted interest rate subsidies on commercial housing loans to low-income households. Government also plays a crucial role in financing investment in public infrastructure (roads, electricity, gas, water and sanitation) to support low-cost housing development.

7. Governments have at their disposal a number of policy instruments to address demand-side and supply-side constraints that limit access to decent housing and constrain housing improvement. On the demand side, those instruments include: tenure security provisions; laws and regulations protecting property and inheritance rights, in particular for women; well-targeted and transparent subsidy schemes that are of affordable scale; the expansion of healthy and competitive mortgage lending institutions; and the establishment or strengthening of innovative arrangements to improve access of the urban poor to finance. On the supply side, instruments may include: removing overly restrictive land development and house-building regulations; improving construction standards and building codes; promoting the production and use of local construction technologies and building materials; and creating a competitive environment in the housing construction sector.

8. Priorities among policy instruments available to Governments will vary among countries depending on specific conditions and target groups. Experience, however, confirms the usefulness of a combination of policy instruments that address supply and demand-side constraints at the same time. In China, for example, in order to facilitate access to affordable housing for families with limited income and savings, authorities have combined fiscal incentives for real estate developers in the form of tax reductions or exemptions to provide housing within a negotiated price range and once-in-a-lifetime equity grants for people living in sub-standard housing to facilitate home ownership. Grants are based on the market value of these families' existing housing.[1]

9. Evidence also suggests that policy instruments work best if supported by an institutional framework that guides and oversees the performance of the housing sector as a whole, provides a platform for an effective interaction of public and private sector actors and community-based organizations that are active in meeting housing needs and ensures that housing policies and programmes benefit the urban poor and elicit their participation.[2]

10. Faced with the prospect of a further growth of slums and informal settlements, many Governments have recognized the need for integrated strategic approaches to the provision of affordable, secure and sanitary shelter, with proactive housing policies and programmes that seek to avert the further growth of slums and informal settlements and policies to improve the shelter situation in existing slums, including in the context of slum upgrading programmes.

11. A proactive policy of acquiring low-cost land on the urban periphery to set aside for future development of affordable housing for low-income households is an option Governments may wish to consider. If low-income housing is built on the urban periphery, it is essential to ensure that residents of such peri-urban communities are connected to the water, sanitation and energy infrastructures, have access to an adequate system of solid waste collection and safe and sanitary disposal

and are provided with adequate public transport links facilitating access to employment and social interaction.

12. In many cities, Governments and municipalities are large landowners. Long-term planning can help to identify spaces becoming vacant in the city centres such as old industrial areas, military facilities and docks. After such areas are reclaimed, they can be used for housing development, with some or all plots reserved for low-income housing.

13. Serviced land for sheltering the urban poor may be secured from private land markets through, for example, land-sharing, land-pooling and land-banking. Land-sharing is a practice that allows land owners to develop a portion of the land more intensively than permitted by normal regulations in exchange for allocating other parts of the land for sheltering slum-dwellers already residing in the area. Land-pooling engages a number of private landowners in urban fringe areas in a partnership for developing and servicing their lands in an integrated manner, thus reducing their development costs. The development of basic infrastructure and the provision of basic urban services for such areas can be financed through the sale of some plots, which can be purchased by the Government and allocated for the construction of low-income housing. In the case of land-banking, Governments acquire open land from the land market well in advance of assessed future housing demands (hence at relatively low prices) and hold it for low-income housing as demand grows.

14. Whether pursuing land-pooling, -sharing or -banking, public authorities engaged in these activities need to have good knowledge of the functioning of land markets and the capacity to make informed decisions and administer implementation processes. Decisions should be made on the basis of sustainable city development strategies or plans that identify medium and long-term land use and housing requirements.

15. Self-help shelter improvement is an important option in slum communities, enabling them to fulfil the housing needs and preferences of their residents within the limitations of their budgets. Community housing initiatives, often organized through associations of slum-dwellers, were most successful if explicitly recognized by national Governments and municipalities in their slum upgrading programmes and poverty reduction schemes and supported by investment in infrastructure and the provision of basic services, including water and sanitation, in combination with measures to secure land and housing tenure for slum-dwellers and create employment opportunities. Experience also suggests that Governments may consider a lenient approach to informal land subdivisions, standards and requirements for infrastructure installation and may accept the principle of gradual housing and community improvement. Stronger recognition by the formal banking sector of slum communities as potential customers could open new avenues for slum-dwellers to access credit. One option could be to develop finance products suitable to the housing needs in slum communities, in connection with the development of appropriate risk-sharing mechanisms to reduce the cost of lending issues related to housing and infrastructure finance are addressed in section V of this report as well as in the finance section of the companion reports on water (E/CN.17/2005/2) and sanitation (E/CN.17/2005/3).

16. Community banks of construction materials have played a useful role in community-based self-help shelter improvement, in some Latin American countries.

Construction materials can be purchased locally, and bulk purchases can be made directly from manufacturers and distributors. Such facilities can also provide opportunities to trade work for materials and can be a vehicle for capacity-building and technical training. Technical assistance centres set up at the local level have also proven useful in responding to the needs of slum-dwellers in the different phases of the housing improvement and community upgrading processes. According to the World Bank, such centres could assist in accessing durable building materials, in the use of construction techniques, in matters related to fiscal management and with the establishment of community savings schemes.[3]

17. Rental housing has an important role as a form of affordable housing for the poor and may be especially well-suited to the needs of newly formed households with small children, whose accumulated savings and current savings capacity may be limited. Expanding the supply of affordable rental housing may require large investments, suggesting the need for the mobilization of private sector investment. This, in turn, requires an appreciation of the basic financial principles that motivate private sector investment in rental housing and of the barriers that must be overcome to increase that investment. The essential policy challenge is to reconcile two core objectives: a reasonable rate of return for investors and an affordable rental level for low-income households. If, for example, private investors are to assume market risks relating to changes in the capital value of the dwellings and subsequent changes in the rental yields, they will demand to be compensated for them through a risk-adjusted rate of return. This, in turn, may necessitate government rental subsidies to low-income renters to maintain the affordability of rented dwellings.[4]

B. Security of tenure and access to land

18. Insecurity of residential tenure has many negative consequences. Living in informal housing situations on illegally occupied land, whether private or public, makes slum-dwellers extremely vulnerable to the threat of eviction. In addition, informal settlements are generally not eligible for public infrastructure or services as water supply, sewers, power and public transport. Residents of slums and informal settlements are often denied the right to participate in public decision-making processes that have a direct impact on them. In addressing security of tenure and access to land, the situation of the residents of informal settlements located on river banks or wetlands, near factories or waste dumps or in other areas that are undeveloped because of vulnerability to natural disasters, health hazards or safety factors deserves special attention.

19. Policy interventions by public authorities to provide security of tenure, infrastructure and services on illegally occupied land may be politically sensitive, as they could be interpreted as de facto recognition of their legal status. Such recognition may in turn encourage further illegal land occupation. Without regularization, however, slum-dwellers are reluctant to invest in improving their living environment, and service providers are reluctant to assume the risk of investing in infrastructure. Such issues can only be addressed on a case-by-case basis, depending on the political and economic context.

20. The pro-poor land act adopted in Belo Horizonte, Brazil, is an example of how a municipality may seek to remedy this predicament. Based on enabling legislation at the federal level, the local authority suspended and relaxed relevant laws, by-laws

and standards, on a temporary basis, in order to facilitate improvements and land tenure regularization. This enabled negotiations to take place between public authorities, service providers and slum-dwellers to establish a plan for the improvement and regularization of the settlements. Once approved, the plan became a legal instrument, enabling public intervention. It also empowered slum-dwellers to invest in improvements, comply with agreed codes and standards and, ultimately, gain legal recognition and title deeds.[5] Other cases in point are India, the Philippines and South Africa, which have adopted legislation that not only protects people from forced eviction, but also ensures that they are relocated only as a last resort and, in that event, are entitled to affordable shelter and basic services. In Africa, a number of countries are giving legal recognition to pre-existing customary tenure systems and transferring control over access to land to customary institutions.

21. Promoting flexible land tenure arrangements is another option that has been successfully applied. Namibia and Sri Lanka, for example, use block titles to entire sections of informal settlements. These block titles enable city authorities to incorporate parts of the city that were previously excluded and to begin the process of registering, and eventually titling, individual holders of land within these blocks. Legislating other flexible alternatives such as permanent or temporary occupancy rights, lease agreements, community land trusts or protection against unlawful eviction are also options that Governments could consider to improve tenure security and access to land. These arrangements are attractive because they do not place heavy financial demands on local government authorities.[6]

22. Legislation must be backed up by measures such as advocacy and awareness-raising campaigns to educate public officials, the courts and private developers on the issue of eviction. It should be stressed that eviction should only be used when absolutely necessary, for example, when slum communities and in dangerous or unhealthy locations, such as in disaster-prone areas, along railway tracks or on garbage dumps, and when alternative housing arrangements can be made. Those measures will yield best results if there is strong leadership and determination on the part of government authorities, supported by non-governmental organizations (NGOs) and organized movements of the urban poor. As demonstrated in various countries, there is also a need to raise awareness of the importance of acquiring secure tenure. People living in slums may perceive the risk of eviction to be negligible or feel that the benefits of such documentation are not a sufficient incentive to meet time-consuming and often bureaucratic requirements.

23. When formulating or implementing an urban land tenure policy, it is important for Governments to consider that tenure issues cannot be isolated from related policies of urban land management and city development. Tenure should be seen as part of a package of policy measures intended to improve the efficient and equitable use of urban lands as well as the living conditions of the urban poor. It is vital to build on tenure options that have worked well and have proved to be an incentive for people to invest their own labour and savings. It is also important to offer a range of tenure options, including ownership and rental options, to meet the diverse and changing needs of communities and households on a long-term basis.[7] Policies aimed at improving the security of tenure and access to land should emphasize women's equal rights to ownership and inheritance, as reflected in UN-Habitat's Global Campaign for Secure Tenure.

C. Land use, urban planning and transport

24. Proactive land management and urban planning are essential tools for sustainable city development. Such development requires a coherent policy approach to land use, housing, environment and transportation as well as cooperation among the relevant institutions. It also suggests integrating urban-rural linkages into national and urban planning processes.

25. Planning for the future of cities requires an efficient land administration, which can mediate among competing interests for urban land and make informed decisions on the use of land. The costs of technology, equipment and skilled human resources required for running an efficient land administration can be considerable. Governments or local authorities operating on tight budgets can consider a progressive expansion of land administration capabilities as technology and equipment are acquired and required human resources trained.

26. The quality of the planning processes depends, to a great extent, on the availability of up-to-date and accurate data and the ability of planners and decision makers to use it for the informed resolution of issues. This requires access to modern tools for data processing, including through a network of national and international data and information systems and sources.

27. In some cases, municipalities have experimented with new land planning and management tools, such as mixed-use zoning and variable area ratios of serviced land, the transfer of building rights without the transfer of land ownership and environmental protection zones.[3,8] Administrative "one-stop shops", in which all the necessary administrative procedures are conducted, can help reduce the cost of, and time spent, on the administrative procedures for land-use development.

28. The coordination of land-use and transport planning to encourage spatial settlement patterns that facilitate access to workplaces, urban services, schools and health care and promote social inclusion, thereby reducing the need to travel, is an important component of sustainable city development planning. Experience has shown that good results can be achieved with a flexible master plan that encourages the use of an optimal combination of modes of transport, including public transportation, private cars, cycling and walking, through appropriate pricing, spatial settlements policies and regulatory measures.

29. The cities of Curitaba, Brazil, Cuenca, Ecuador, and Bogotá, Colombia, for example, demonstrated that employing an urban planning design oriented to mass transit, bicycles and pedestrians, in combination with a well-functioning public transport infrastructure and land-use management system, can enable a shift from private motorized transportation to alternative transportation modes, thus reducing air pollution, congestion and accidents.[9] The Partnership for Clean Fuels and Vehicles and its Clearing House, located at UNEP headquarters, actively support developing countries in switching to cleaner fuels and cars through technology exchange, technology transfer and capacity-building.

30. In most large cities in the developing world, the informal transportation sector provides reasonably reliable and affordable transport and delivery services, especially for informal settlements. It is an important source of employment and income, particularly for new migrants to the city. On the other hand, the informal transport sector poses major challenges to sustainable city development. The

vehicles are often old, highly polluting and unsafe, and operators usually have no insurance to cover injuries or damage. Intense competition in the unregulated informal transport sector may cause aggressive driving, and present competition with the public transit system, reducing its economic viability. Some cities are addressing these problems by licensing and regulating the informal transport sector, setting vehicle standards and insurance requirements, banishing pedicabs or other small, slow vehicles from major streets, limiting the number of vehicles and establishing waiting and loading points off the busiest streets.[10]

31. Decisions on integrated land use and transport development seem to yield best results when planned with the active participation of municipalities and community organizations and implemented at the municipal level. As demonstrated by many European countries, decentralizing the responsibilities for urban transport and assigning them to municipalities, together with the decentralization of revenue-raising power, has proven an area of policy success in the development of transportation systems that contribute to sustainable city development. Policy interventions by national Governments or State or provincial government authorities are crucial to providing framework for municipalities to act, including assignment of legal, investment, land and property taxation authority.[11]

D. Participation and partnership for housing and urban services provision

32. Many city authorities have recognized the importance of bringing community organizations directly into the planning process and including the private sector and other non-governmental stakeholders in service delivery schemes. In some cases, municipalities tender service delivery contracts to community-based organizations and NGOs, recognizing that services are more likely to reach the urban poor through these channels. Where the formal business sector is providing water, sanitation and other infrastructure services, municipal authorities can subsidize services to poor households or require cross-subsidization by the private operator.

33. Expanding and upgrading services for the urban poor from small-scale service providers is another important option, in particular for the provision of water and sanitation services to low-income urban households living in areas difficult to service with conventional water distribution and sewerage networks. These providers generally operate without subsidies and with prices and services that compare favourably with official providers. There is increasing evidence to suggest that, in many locations, in particular smaller settlements and peri-urban areas, working with and through such providers can be a cheaper, more effective w y of improving and extending provision for water and sanitation than conven onal public sector provision or reliance on large-scale private companies.[12] Policy options and possible actions to improve access to water (E/CN.17/2005/2) and sanitation services (E/CN.17/2005/3) are presented in the Secretary-General's reports on water and sanitation.)

34. Public-private partnerships can be a promising tool for meeting the needs of the urban poor for housing, public transport, water, sanitation and other urban services. An important feature of this type of partnership is that while private sector partners may need to accept social responsibility for working in areas involving lower profit margins, public sector agencies involved need to become more market-

sensitive, with better knowledge of the operation of land and housing markets and the concept of risk-sharing.

35. In order for public-private partnerships to work effectively, they require a transparent, equitable and flexible regulatory framework, including the provision of incentives for the private sector. Experience shows that service charges and subsidies can have a decisive impact on the ability of private service providers to reach the poor. Performance-based subsidies can induce private operators to finance initial investments and have a positive effect on service delivery reaching a greater number of the poor,[13] while providing tax incentives can encourage private sector mortgage finance institutions to extend their services to this community. Because of the diversity of private sector actors in urban services provision, from the small vendor to the large company and because of the diverse needs of users, partnerships must be based on a real understanding of the local context to be able to truly contribute to meeting the needs of the urban poor.

36. Service delivery to the poor would greatly benefit from the involvement of civil society groups and community-based organizations in public-private partnerships. These organizations have usually gained valuable experiences in delivering services to low-income segments of society and have reliable information with regard to their circumstances and their actual needs for housing and associated services.

III. Developing a policy environment supportive to employment and enterprise development

37. Many cities in developing countries face the challenge of devising strategies and policies that increase the productivity of urban areas while supporting economic growth that benefits the poor. This essentially implies integration of a number of key elements in strategic planning for economic development and poverty reduction, including a coherent policy framework, with policies and regulatory instruments that help increase the productivity of existing enterprises, create new entrepreneurial opportunities and labour-intensive jobs and improve the urban poor's access to productive resources and market opportunities. Urban economic growth strategies that benefit the poor need to recognize the contribution of the informal sector to economic development and employment.

A. Employment in construction

38. The adoption of labour-intensive methods in construction and infrastructure development can contribute to the provision of much-needed services while providing employment opportunities and building the capacities and skills of the low-skilled unemployed urban workforce. Employment-intensive and local resource-based techniques can be applied to a wide range of infrastructure works, including road and sidewalk construction, small bridges, drainage systems, on-site sanitation, water supply and sewerage reticulation, land development, electrification, the collection of solid wastes and other construction.

39. Experience in many countries shows that explicit pro-employment approaches can yield high payback levels, at equal cost, including significant job-creation, the

development of local skills and small-scale contractors, import substitution through use of local resources and easier maintenance. Labour-intensive methods are particularly well-suited to infrastructure solutions in densely built-up slum areas. The challenge is to bring them to scale, with national and city authorities routinely giving preference to labour-based and local resources-based technologies whenever such options are cost-efficient and technically feasible. Technology transfer, both from developed to developing countries and among developing countries, relating to construction techniques, materials and standards can promote construction practices that maximize the economic, social and environmental benefits of new construction.

40. The procurement system is a practical instrument in the hands of municipalities that can be used to promote employment under decent working conditions, as well as other social and environmental objectives. Local authorities can give preference to small local businesses in contracts for the provision of basic urban services. Experience shows that the tendering process for public works and services can foster more entrepreneurial development if works are tendered as a series of smaller contracts, accessible to local contractors through simplified tender documents.

41. Community contracting, whereby a community group enters into a contractual agreement with local government to undertake works that improve local living conditions, has been used as a form of procurement to benefit the poor. In particular, the combination of community contracts with labour-based approaches presents many advantages in terms of community empowerment, job-creation and income generation, as well as capacity-building and partnership development.[14] Such arrangements also create a sense of ownership and civic pride, internalize profits, and improve transparency in the use of municipal resources.

B. Promoting the development of small enterprises

42. Local authorities can play an essential role in the design of appropriate policies to support the development of small enterprises, including through well-crafted and transparent regulatory frameworks, facilitated access to production assets and utilities and the formalization of informal employment. In particular, local authorities can play an important role in supporting small enterprises to comply with labour laws and safety standards. Recent research by ILO shows that, over time, small enterprises that comply with registration requirements create more employment than those that do not. The costs of formalization, however, and the local tax burden are often prohibitive for many new entrepreneurs. The simplification of the registration procedure in a municipality in the city of Lima resulted in a more than three-fold increase in enterprise registrations, from 1,100 to 4,000 between 1998 and 2000. The municipality reduced approximately 45 bureaucratic steps to 12, reducing processing time from 70 days to just 1. In addition, the municipality established a business advisory office that assists an average of 2,500 clients a month.[15]

43. To support the development of small enterprises, more emphasis can be given to raising awareness of the benefits of compliance with laws and regulations and providing technical assistance, instead of imposing fines for failure to comply. Compliance offers practical benefits to small-scale enterprises by increasing their access to support and services. The active involvement in policy reviews or reforms

of those directly affected can mobilize support for policies and result in higher levels of compliance.

44. For many micro and small businesses, a key challenge is gaining access to formal credit markets in order to avoid paying the high interest rates prevalent in informal markets. The market for micro and small-scale enterprise finance is generally characterized by relatively high administrative costs, which can be addressed by innovations in financial services, changes in the institutional infrastructure and policy reforms. Policy makers can address the lack of small-scale financial services by promoting locally based private-public banks, relaxing collateral requirements and offering loan guarantees or interest rate subsidies.

45. In addition to easier credit access, small enterprises would also benefit in terms of efficiency and productivity from improved access to technology, training and public utilities, including electricity, water, sanitation and telecommunications. Given the "public good" nature of much information on technologies and markets, Governments and local authorities may wish to provide support to information acquisition and dissemination efforts on behalf of small enterprises. The Internet can greatly facilitate this process.

46. Microenterprises operated from home are, in many instances, the only source of income for workers in the informal sector. People operating such businesses would benefit from health-care services and training on health and safety measures provided by public authorities. In addition, policies can be developed to allow street trading while assuring public safety and mobility. As a general principle, policy interventions should be guided by the recognition of the value of street trade for the poor, as both a source of income and an opportunity for purchasing goods at low prices.

C. Addressing the employment needs of special groups

47. Persistently high urban youth unemployment, compounded by continuing rural-to-urban migration, has continued to plague many cities in developing countries. Urban youth need to be actively, consistently and positively engaged in city life. Education, vocational training to develop business skills, apprenticeships and mentoring are useful means to improve the access of urban youth to job opportunities and to provide a basis for matching skills to demands in the urban labour market.

48. Assisting young men and women in starting new businesses is a good investment in the future. Financial, managerial and technical support are of particular importance in the start-up years of new businesses. The more support young entrepreneurs receive during that time, the better their chances are for building sustainable and prosperous businesses in the years to come.

49. Reaching young women and addressing their special needs and situations deserves particular attention. Special assistance programmes may be needed to facilitate the development of local entrepreneurship among the many poor women who work in the informal sector, and face limited entrepreneurial opportunities. Such programmes can include access to small loans on favourable terms, special training on market access and business counselling. In this regard, organizations of

women workers in the informal sector that represent their members in consultations or negotiations with local authorities can be useful.

50. The city of Cotonou has pursued an integrated approach that combines financial and non-financial assistance. Based on existing savings and credit systems, a mutual guarantee fund was established, offering loan facilities for groups of women entrepreneurs. Capacity-building for associations and collective initiatives underpinned the approach. A self-managed common facility centre was established with the support of the municipality, benefiting more than 2,000 women directly. The groups now have well-functioning relationships with local banks and the municipal authorities. Their success and visibility has led to the replication of the approach in other cities in Benin.[16]

51. The Amhara administrative region in Ethiopia offers another good example. There, associations of women microentrepreneurs organized a pilot trade fair, exhibiting their products in a central location in town. The women's commercial success, the sales of the day represented more than their regular monthly turnover, has sparked growing interest in membership and an increase in membership contributions. In consultation with the city authorities, one of the central road junctions has now been designated for the regular holding of trade fairs.[16]

52. In some Latin American countries, community childcare programmes have gained popularity among working parents, especially single women.[17] Women from the communities involved take care of a number of neighbourhood children in their homes. Parents and local authorities share the cost of supplies and salaries of the day-care providers. Food donations are often provided for feeding the children. Basic hygiene education is an integral part of the children's daily activity schedule.

IV. Mobilizing financial resources

53. According to UN-Habitat, multilateral and bilateral international assistance for housing and urban infrastructure is less than $5 billion annually, and less than 20 per cent of this amount is earmarked for slum upgrading. Whereas business sector investment in infrastructure increased rapidly during the 1990s, totalling more than $750 billion over the period from 1990 to 2001, less than 5 per cent of this amount is directed to slums and other types of informal settlements. The cost of achieving the Millennium Development Goals' (MDGs) target 11, that is, improving the lives of at least 100 million slum-dwellers by 2020, is estimated at between $70 and $100 billion.[18]

54. External financing, however, can at best cover only a small portion of the financial resources required to meet the needs of the urban poor for housing, infrastructure and urban services. Remittances from overseas workers can also be a significant source of finance for housing.[19] Nevertheless, domestic capital, both public and private, remains the main potential source of funding, in spite of continuing problems in mobilizing such resources in poor countries.

55. The poor have a variety of financial needs, including working capital for microenterprises, remittance and payment services, insurance and loans for housing, school fees and emergencies, and such a broad range of financial needs cannot easily be met by any single type of financial institution. An important objective of public policy would therefore be to encourage inclusive finance through the

development of financing institutions and financial products suitable to the requirements of the poor.

56. Traditionally, development banks, postal banks, farmers' banks and other public banking institutions have been an important source of credit for the poor. In many instances, they act as intermediaries to channel loans from multilateral development banks or donors to development programmes and projects whose beneficiaries include poor people. More recently, community-based organizations and microfinance institutions have taken on a more prominent role in providing financial services to the poor.

A. Promoting community-based approaches to the financing of infrastructure and housing

57. Community-based organizations have registered notable successes in the areas of housing development and services such as health, water and sanitation. Savings and loan activities are a central function of many such organizations, drawing people together on a regular and continuous basis to make decisions on lending to meet the individual and collective needs of their members. The process educates participants on the management of the community's investments and on access to external sources of finance. These savings and loan activities can be instrumental in meeting the needs of communities for improved housing, income-generation, social welfare, emergency credit and environmental improvements.[20]

58. Networking among community-based organizations can facilitate exchanges of experience, improve access to larger financial resources with greater opportunities for risk pooling and enhance negotiating power vis-à-vis external agencies. Networking can also lead to the creation of common funds, as suggested by the experience of several Asian countries, including Thailand and Cambodia. These networks have begun working with municipalities and other local organizations on issues crucial to the lives of the members, such as citizens' rights, housing, welfare, community enterprises and community environment and health.

59. With regard to housing loans, although a certain scale is achieved by forming a network, such a network will often still need external funds to provide adequate finance for the poor. In addition, many poor communities find it difficult to finance both land acquisition and housing development. In such cases, Governments may be able to provide land to community groups, which would then borrow collectively to finance housing development. Revolving funds in some countries have supported large-scale improvements in housing for the urban poor and associated infrastructure. It is important that such funds be managed in a participatory manner so that the needs of the users are reflected in the terms and conditions of lending.

60. Community savings programmes for housing have been used successfully, with individual savings pooled into legal trusts, thereby providing a mechanism to attract additional financing and protect against defaulting, and through which to receive subsidies. Funds can be used for locally purchased building materials, labour or down payments for land purchases.

61. From the perspective of the donors, one way to increase the proportion of funding that directly reaches people living in poverty is by channelling support through a local fund.[21] Experience shows that community involvement in the

management of such funds has been successful, resulting in an allocation of funds that reflects the needs of the communities.[22] This type of locally managed fund for community initiatives tends to work best in cities or city districts where there are already effective, representative community organizations or local, broad-based NGOs.

62. Community-based organizations tend to approach housing problems in an integrated way, simultaneously addressing community infrastructure and services. However, there is still a need to connect these initiatives to the provision of large-scale infrastructure and services such as city-wide sanitation systems or solid waste management.[23] Donors could complement their contributions to local funds by supporting links from local communities to wider infrastructure and service networks.

B. Promoting and scaling-up microfinance schemes

63. As demonstrated in many countries, microfinance is a promising financing mechanism that is well suited to the characteristics of the informal sector and has gained prominence as a source of financing for low-income communities.[24] Microfinance institutions have been developed to respond to certain financing needs of the poor, in particular for short-term working capital loans to start up or expand small businesses.

64. In recent years, there has been some diversification of microfinance towards supporting the incremental investments of the poor in home improvement, reflecting the dual function of many homes as places of business. More than 40 programmes have been identified in Asia, Latin America and the Caribbean and Africa by various studies.[25] In some cases, these programmes have developed as an extension of microfinance for small-scale enterprises, once again reflecting the dual function of houses as shelter and workplace. In other cases, housing microfinance institutions have been developed out of community advocacy groups for shelter provision.[26]

65. There are, however, limitations to the actual financial capacities of microfinance institutions. Successfully expanding small-scale enterprises may require growth capital beyond what microfinance institutions can offer, and accessing bank financing may be difficult. Depending on the degree to which bank and capital markets are developed, public development banks or private banks can play a significant role in financial intermediation and liquidity generation. In Latin America and the Caribbean, guaranteed funds for small businesses help small and medium-scale enterprises gain access to bank financing. Credit scoring systems are another alternative for making bank loans less costly and more readily available to these enterprises.

66. The amount of financing available for housing microfinance remains far from what is needed to meet the demands of an ever-growing urban poor population. Microfinance for housing must be sealed-up in order to reach a wider proportion of those requiring such services. These institutions are still not well-suited to providing the longer-term and larger-scale finance needed for home purchases or the purchase of costly capital equipment, though it is possible that they could evolve in this direction. Commercial banks and financial housing institutions can also make an important contribution to financing poor households by extending their services to communities beyond their usual upper and middle-income customers.

67. In order for microfinance institutions to grow and diversify, policies and regulations may need to be adjusted to better respond to the needs of these institutions. In addition, the provision of microfinance is greatly enhanced by a clear, transparent and equitable subsidy regime and the promotion of linkages between savings, subsidy and credits. Through the creation of networks among microfinance institutions, an effective lobby for policy change can be established to support expanded financial services to the poor.[27]

C. Developing market-based financial instruments and institutions

68. The combined effect of decentralization and rapid urbanization has confronted cities with an even greater need to improve the provision of basic infrastructure and to mobilize resources for this purpose. In having to cope with smaller transfers from the central Government and competing claims for scarce budgetary resources, local governments often face large resource gaps for infrastructure investments.

69. Many developing countries have established municipal development banks to assist local governments in financing investments. Some of these banks administer pools of loans from multilateral development banks and government sources, while others serve as a bridge to private credit markets, borrowing on domestic or foreign markets, mostly with central Government guarantees, and on-lending to local governments. With the maturation of the financial sector, these development banks can be made more market-oriented, raising long-term resources on private credit markets and offering a wide range of financial services geared to the needs of local governments. They can compete with other financial institutions based on their competitive advantage, in their knowledge of the local government sector. Municipal development banks may be able to mobilize long-term debt on private markets for on-lending for priority local infrastructure investments.

70. Municipalities with good financial standing and track records, a favourable credit rating and a solid project proposal have a good chance of meeting some of their investment needs by tapping local bond markets.[28] Local governments can issue "general obligation" bonds backed by their taxing power, or "revenue" bonds secured by the earnings of specific projects, such as water supply and highways, for which the bonds are issued.

71. With regard to financing through municipal bonds, the challenge is to expand the funding pool for local governments by tapping the savings of private individuals and institutions. The development of domestic municipal bond markets should go hand-in-hand with efforts towards improving the municipal revenue base and in the institutional framework within which municipal services are delivered. Effective mechanisms to diversify and transfer risks are also necessary.

72. Municipal authorities planning to issue bonds may need to obtain a credit rating from a recognized rating agency. Bond guarantees, whether from the central Government or from an international financial institution, will increase the chance of successful financing, but must be used sparingly. Coordinated efforts involving commercial banks, debt underwriters, institutional investors, bond insurers, utility operators, rating agencies, regulators and central and local governments need to be directed to creating the conditions for the development of domestic credit markets for local infrastructure finance.

73. Municipal development banks and bond markets are not mutually exclusive; indeed, they play complementary roles, providing local governments with different options for funding, infrastructure and other investments. While local governments with a good financial record may be able to tap the domestic municipal bond markets directly, others are likely to rely on the pooling capabilities of financial institutions to mobilize long-term credit.[29]

D. Technical and financial assistance

74. The efforts of developing countries to mobilize domestic financial resources could be supported by international development partners. Bilateral development agencies and regional and multilateral finance institutions can assist in financial sector development and capacity-building in financial management, while municipalities and local authorities may need particular support in capacity-building for managing funds, revenue collection and tendering contracts to private service providers. Multilateral development partners can play a crucial brokering role, bringing together both development and financial partners and field-testing financial mechanisms that mobilize domestic capital for urban development. Assistance in adjusting the regulatory frameworks to reflect conditions in domestic and international capital markets may also be required.

75. Grant support, equity investments and loan guarantees are some of the specific forms of financial assistance that can, preferably in combination, mobilize domestic capital in favour of human settlement development and slum upgrading. NGOs, particularly those that support income-generating activities of slum-dwellers and urban poor organizations, may be primary candidates for grant support. Equity investment in microfinance institutions is extremely useful because it strengthens their capital base and helps them build loan portfolios over time. This is particularly true for institutions that seek to diversify their lending portfolios beyond small-business to include home improvement and tenant buy-out schemes. Loan guarantees, such as equity investments, can leverage additional capital for small business development, housing improvement and slum upgrading, reassuring lending institutions that the guarantor will meet the obligations if the borrower fails to repay. Such an assurance can motivate lending institutions to grant more loans than perceived or actual risk would otherwise justify. Alternatively, guarantors can underwrite bonds issued by cities and local authorities to finance infrastructure.[30]

V. Moving ahead: towards a framework for action

76. **New approaches are required for the planning and development of human settlements. These approaches must integrate urban planning, housing development, the delivery of safe drinking water and sanitation services, solid waste management, education and health-care services, transportation and employment and enterprise development. While there are many examples worldwide of the impact of local policies and programmes on reducing urban poverty, the challenge is to find solutions to avert the growth of slums and informal settlements that work at city and nationwide scales. The economic, social and environmental interdependence between rural and urban areas requires an approach to sustainable human settlements development that is**

both balanced and mutually supportive. Where slums and informal settlements host the majority of the rapidly growing urban population, sustainable city development cannot be separated from slum upgrading and the integration of those living in such areas into the wider urban economy.

77. **Policy interventions benefiting the poor by Governments and municipalities seem to be most effective if they support community-based programmes or strategies. Experience shows that the most powerful examples of slum upgrading have been at the community level, where organizations of slum-dwellers, often in the form of village councils or associations, have built their own capacities to improve their homes and neighbourhoods. Policymaker's recognition of the urban poor as agents of change has proven invaluable in empowering them to emerge from the vicious cycle that traps them in slums and forge partnerships with local authorities in implementing pro-poor, community-based programmes.**

78. **The full participation of all relevant stakeholders in decision-making and implementation is an important learning process. Governments and local authorities will have to assume the lead in setting the rules to enable the various stakeholders to play the roles that provide the best results in partnership. Lasting partnerships require time for the stakeholders to know and trust each other and to learn to work in concert.[31] For that to happen, government authorities will need to build their own capacities to communicate the main principles of participation and inclusive decision-making to their partners. Enhanced cooperation and coordination among United Nations agencies and with other bilateral and multilateral development agencies could create a solid basis for more effective assistance to Governments and local authorities in building such capacity.**

79. **Gender equality remains a particular challenge in most countries. Even in countries in which legislation enabling gender equality exists, social and cultural circumstances often prevent women from having full and equal access to land, housing and property.**

80. **Mobilizing the full potential of domestic capital and attracting financial means from external sources for expediting the implementation of the human settlements goals and targets contained in Agenda 21 and the Johannesburg Plan of Implementation, including target 11 of the MDGs, require a coherent macroeconomic policy framework and laws and regulations that are conducive to sound financial management. At the international level, increasing official development assistance (ODA) to the levels needed to improve housing and urban services to the poor and to achieve target 11 of the MDGs remains an essential and continuing challenge, as is the consideration of practical ways to ensure that ODA leverages domestic financial resources for sustainable human settlements development. Recent commitments by donors to increase ODA, including those made at the International Conference on Financing for Development, and commitments to support developing countries in meeting the MDGs could increase the resources available for sustainable human settlements development.**

Notes

[1] HSP/WUF/2/7.

[2] Stephen Mayo, "The Do's and Don'ts of Housing Policy", World Bank, Infrastructure Notes, April 1994.

[3] "Brazil: Progressive Low-Income Housing: Alternatives for the Poor" (World Bank report No. 22032 BR), December 2002.

[4] The Allen Consulting Group, "Better housing futures: stimulating private investment in affordable housing", *Report to the Affordable Housing Forum*, 2004; see also: Alain Gilbert, Rental housing: an essential option for the urban poor in developing countries (UN-Habitat publication, 2003).

[5] HSP/WUF/2/3.

[6] HSP/WUF/2/6.

[7] Geoffrey Payne, "Innovative approaches to tenure", *Habitat Debate*, vol. 7, No. 1, March 2001.

[8] *Municipal Land Management in Asia: A Comparative Study*, Regional Network of Local Authorities for the Management of Human Settlements (CITYNET), 1995.

[9] http://www1.oecd.org/cem/UrbTrav/Workshops/LandUse/LiGorham.pdf.

[10] *Informal Transport in the Developing World*, UN-Habitat, Nairobi, 2000.

[11] *Implementing Sustainable Urban Transport Policies: Moving Ahead: National Policies to Promote Cycling*, European Conference of Ministers of Transport, 2004.

[12] HSP/WUF/2/9.

[13] "Pro-poor regulation" (Asian Development Bank background paper), prepared for the ADB Conference on Infrastructure Development, 2002.

[14] This has been demonstrated, for example, by the Hanna Nassif community-based upgrading project in the United Republic of Tanzania: see Tournée, J. and van Esch, W., "Community Contracts in Urban Infrastructure Works: Practical lessons from experience, ILO, 2001.

[15] *Mejores Práticas Municipales en Desarrollo Económico Local*, PROMDE/ILO, Lima, 2002.

[16] http//:www.ilo.org/seed.

[17] "What are the Policy Issues?" *Labor Markets & Employment*, World Bank publication, 2001.

[18] HSP/WUF/2/7.

[19] *World Economic and Social Survey 2004* (United Nations publication, Sales No. 04.II.C.1.

[20] Somsook Boonyabancha, "Savings and loans: Drawing lessons from some experiences in Asia". *Environment and Urbanization*, vol. 13, No. 2, International Institute for Environment and Development, October 2001.

[21] The City Community Challenge Fund of the Department for International Development of the United Kingdom is one example; the Swedish International Development Agency has programmes in Central America and South Africa; the Danish Cooperation for Environment and Development has assisted the Urban Community Development Activities project in Thailand.

[22] Jo Beall and Sanjiv Lingayah, "Interim external evaluation report on the City Community Challenge Fund pilot programme", January 2002.

[23] David Satterthwaite, "Reducing Urban Poverty: constraints on the effectiveness of aid agencies and development banks and some suggestions for change", *Environment and Urbanization*, vol. 13, No. 1, International Institute for Environment and Development, April 2001.

[24] According to the Micro-Credit Summit Campaign, as of the end of 2002, 2,572 microcredit institutions reported having 67.6 million clients with an outstanding loan, 41.6 million of whom were considered among the poorest. Of the latter, 79 per cent, or 32.7 million, were women. The number of the poorest reached has grown at an average rate of about 40 per cent per year since 1997: see: Sam Daley-Harris, "State of the micro-credit: summit campaign report 2003", Micro-Credit Summit campaign, 2004.

[25] For example: Harvard University Graduate School of Design/Development Alternatives Inc./USAID, "Housing microfinance initiatives: Synthesis and regional summary, 2000"; International Institute for Environment and Development (*HiFi News*, No. 9, September 2001); Cities Alliance, "Shelter finance for the poor series", 2003.

[26] For instance, large organizations and federations formed by the urban poor and homeless in Cambodia, Thailand, India, the Philippines, Namibia, South Africa and Zimbabwe have usually grown out of local savings groups. These organizations not only provide housing and income-generating credits, they also lobby Governments to make land, infrastructure and building policies more pro-poor: see: Celine d'Cruz and David Satterthwaite, "The current and potential role of community-driven initiatives to significantly improve the lives of 'slum' dwellers at local, city-wide and national levels", August 2004.

[27] The Consultative Group to Assist the Poor, "CGAP phase III strategy, 2003-2008", January 2003.

[28] Good examples where the gap has been filled in part by tapping municipal bond markets include: Ahmedabad and Tamil Nadu urban development bonds of India, several municipalities of the Philippines and the Tlalnepantla municipality of Mexico. There is also a long history of bond issuance by municipalities and utilities in South Africa. A number of Eastern European counties are also entering the municipal bond markets.

[29] Samir El Daher, "Specialized financial intermediaries for local governments: a market-based tool for local infrastructure finance" (World Bank infrastructure notes), 2000.

[30] HSP/WUF/2/7.

[31] Rosanna Nitti and Shyamai Sarkar, "Reaching the poor through sustainable partnerships: the slum sanitation program in Mumbai, India" (World Bank Urban Notes, No. 7), 2003.

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Major groups' Priorities for Action in water, sanitation and human settlements**

Note by the Secretariat

1. The Johannesburg Plan of Implementation adopted at the World Summit on Sustainable Development,[1] and the decisions of the eleventh session of the Commission on Sustainable Development[2] called for strengthened involvement and enhanced participation of major groups in the activities of the Commission and in the implementation of Agenda 21,[3] the Programme for the Further Implementation of Agenda 21[4] and the Johannesburg Plan.

2. The Bureau of the thirteenth session of the Commission on Sustainable Development decided to continue to build on the participatory practices of previous sessions of the Commission, in particular the twelfth session, as well as of the World Summit on Sustainable Development.[5] Various opportunities for the exchange of views and discussion will be provided to major groups both during the intergovernmental preparatory meeting and at the thirteenth session of the Commission itself, including interactive discussions and a dialogue session with ministers at the high-level segment, as well as the possibility of commenting throughout the meetings, as time permits.

3. The organization of the input and contributions of major groups to the thirteenth session of the Commission was inspired by practices used at past sessions through a self-selected multi-stakeholder steering group composed of organizing partners from network organizations representing the nine major groups.[6] The organizing partners are: the Women Environment and Development Organization, for women; the Youth Caucus of the Commission on Sustainable Development, for youth and children; the Indigenous Peoples' Caucus of the Commission on

* E/CN.17/2005/1.
** The views and opinions expressed do not necessarily represent those of the United Nations.

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Sustainable Development, the Indigenous Peoples' International Centre for Policy Research and Education and the Indigenous Environmental Network, for indigenous people; the Sustainable Development Issues Network (through the Northern Alliance for Sustainability, Third World Network and the Environment Liaison Centre International), for non-governmental organizations; the International Council for Local Environmental Initiatives — Local Governments for Sustainability, for local authorities; the International Confederation of Free Trade Unions (through the Trade Union Advisory Committee to the Organization for Economic Cooperation and Development), for workers and trade unions; the International Chamber of Commerce and the World Business Council for Sustainable Development, for business and industry; the International Council for Science and the World Federation of Engineering Organizations, for the scientific and technological community; and the International Federation of Agricultural Producers, for farmers. These organizing partners facilitated the preparation of the major groups priorities for action in water, sanitation and human settlements contained in the annex to the present note.

4. This document builds on the major groups' discussion papers prepared for the twelfth session of the Commission, which provided their overall views on the status of implementation of commitments made related to the three main issues on the agenda, including reference to cross-sectoral themes, successes and challenges of implementation and practical contributions.[7] Those papers also provided case studies and examples of work under way through their own organizations to contribute to the implementation of the commitments set out in the Johannesburg Plan of Implementation related to water, sanitation and human settlements.

5. This is the first time that the written inputs of major groups have been compiled into one document, which outlines each sector's priorities for policy options and possible actions to overcome the constraints and obstacles and meet the challenges identified at the Commission's twelfth session. While major groups concur on a number of issues, there are significant differences in what they identify as needs to be filled as well as possible synergies that may be adopted.

6. The report on the major groups priorities for action (see annex) will provide a basis for the contributions of major groups to the discussions on policy options and possible actions to expedite implementation. It presents various policy opinions and proposed solutions for the consideration of policy makers in their deliberations, and will serve as a starting point for their participation in the intergovernmental preparatory meeting and at the thirteenth session of the Commission.

Notes

[1] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex.

[2] *Official Records of the Economic and Social Council, 2003, Supplement No. 9* (E/2003/29).

[3] *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992* (United Nations publication, Sales No. E.93.I.8 and corrigenda), vol. I, *Resolutions adopted by the Conference*, resolution 1, annex II.

[4] General Assembly resolution S-19/2, annex.

[5] The multi-stakeholder participation in the sessions of the Commission became a standard part of its work programme at its sixth session through the launch of the dialogue segment in response to General Assembly resolution S-19/2, recommending that the Commission strengthen its interaction with representatives of major groups, inter alia, through greater and better use of focused dialogue sessions. The dialogue segments launched in 1998 have been recognized as a unique participatory model for effectively engaging major groups and Governments in a genuine dialogue on specific sustainable development issues.

[6] Section 3 of Agenda 21 defines major groups as comprising women, children and youth, indigenous people, non-governmental organizations, local authorities, workers and their trade unions, business and industry, the scientific and technological community and farmers.

[7] The major groups' discussion papers for the twelfth session of the Commission on Sustainable Development are contained in E/CN.17/2004/10 and E/CN.17/2004/10/Add.1-9, and are available on the Internet at: http://www.un.org/esa/sustdev/mgroups/csd_12/mgdiscussionpapers.htm.

Annex

Major groups' Priorities for Action in water, sanitation and human settlements*

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* This compilation has been prepared, respectively, by: the Women Environment and Development Organization, for women; the Youth Caucus of the Commission on Sustainable Development, for youth and children; the Indigenous Peoples' Caucus of the Commission on Sustainable Development, the Indigenous Peoples' International Centre for Policy Research and Education and the Indigenous Environmental Network, for indigenous people; the Sustainable Development Issues Network (through the Northern Alliance for Sustainability, Third World Network and the Environment Liaison Centre International), for non-governmental organizations; the International Council for Local Environmental Initiatives — Local Governments for Sustainability, for local authorities; the International Confederation of Free Trade Unions (through the Trade Union Advisory Committee to the Organization for Economic Cooperation and Development), for workers and trade unions; the International Chamber of Commerce and the World Business Council for Sustainable Development, for business and industry; the International Council for Science and the World Federation of Engineering Organizations, for the scientific and technological community; and the International Federation of Agricultural Producers, for farmers.

I. Women

Access to water and land: human rights

1. Although access to safe drinking water and other resources has been recognized as a human right, implementation of this right has thus far failed, negatively impacting women.

2. The creation of national frameworks (for example, constitutional, legislative and regulatory) is premised on access to water as a basic human right. National and local governments should assume responsibility for implementation.

3. Governments should ensure women's access to and ownership of land, as agreed upon in the Johannesburg Plan of Implementation. Constitutional and legal barriers that bar women from owning or inheriting land should be eliminated in order to ensure their adequate access to housing and water.

4. Women's rights to land, water and other natural resources should be incorporated into the provisions of the Convention on the Elimination of All Forms of Discrimination against Women.

5. Women's safe access to water, housing and sanitation should be ensured, particularly in situations of conflict and war.

Private sector involvement in the water and sanitation sector

6. The liberalization of water markets is pushing large sectors of the population further into poverty, forcing the use of unsafe sources of drinking water. Women are badly affected. Policies favouring the privatization of public services create a lack of accountability and transparency.

7. Governments should recognize the negative impacts of water privatization on the livelihoods of poor and indigenous women. Water must be identified by all Governments, the private sector and all other stakeholders as a public good and human right, not a commodity to be traded on the open market. Water management must be for social needs and environmental sustainability rather than for short-term profit.

8. Governments should ensure safe, accessible and affordable drinking water supply (inter alia, through price regulation), sanitation and housing for all citizens, as well as financial support for the most disadvantaged groups in society, such as single-parent households and households affected by the HIV/AIDS pandemic.

9. Water supply should be explicitly excluded from the "environmental services" sector under the General Agreement on Trade in Services of the World Trade Organization.

10. Private sector involvement in water and sanitation provision should be governed by corporate accountability principles and should adhere to the core labour standards of the International Labour Organization (ILO). Private/public partnerships must be subject to legal constraints and governmental oversight to ensure transparency, accountability and the fair and effective provision of services.

11. The private sector involved in water and sanitation should publicly disclose detailed information on operations, labour practices and financial data, including profit, average cost, capital expenditure and outstanding debt.

Financing

12. According to information submitted to the twelfth session of the Commission on Sustainable Development, less than 5 per cent of investments in public/private partnerships come from the private sector. The idea that the private sector is the main source of financing to reach the Millennium Development Goals (MDGs) is erroneous.

13. Public/public and NGO/public partnerships should be established. Such partnerships should be formalized and core funding should be made available for women's non-governmental organizations (NGOs) in order to facilitate their meaningful contribution in all critical phases of policy, project design and implementation.

14. More funds must be devoted to activities at the local level to help empower women and other disadvantaged groups. These funds should include longer-term and flexible financing for cross-cutting issues.

15. Funds and other resources should be allocated to women's organizations to help them identify their own priorities to successfully address the practical and strategic gender needs of women. These organizations should serve as full partners in water, sanitation and housing initiatives rather than as recipients of aid.

16. In order to meet MDGs, sanitation must have a higher priority on the sustainable development agenda. Eco-sanitation and decentralized sewerage technologies should be enhanced and promoted.

Governance and gender mainstreaming

17. Although gender is a cross-cutting issue, as agreed to at the eleventh session of the Commission, it remains largely invisible in the documents and deliberations of the United Nations and other institutions dealing with sustainable development and natural resources management.

18. Equity, equality, transparency and accountability must be ruling principles for national and local governments delivering water and sanitation services, and guaranteeing sustainable livelihoods in human settlements.

19. Governments should advance implementation of all United Nations mandates referring to gender issues, including Agenda 21, the Beijing Platform for Action, the Johannesburg Plan of Implementation and the Convention on the Elimination of All Forms of Discrimination against Women.

20. All institutions dealing with human settlements, water and sanitation should ensure that gender is a central factor in their policies, programmes and budgets. They should use tools such as: sex-disaggregated data; gender analysis; gender-responsive budgeting initiatives; gender-sensitive monitoring and evaluation systems; and gender-sensitive indicators.

21. All public entities that deal with water, sanitation and human settlements should institute gender training and strengthen gender capacity, targeting senior managers, regular staff and personnel in charge of operations and maintenance.

22. Implementation of the targets of MDG 7 should be linked to MDGs 1 and 3. Governments should integrate a gender perspective in their country reports on the implementation of MDG 7. The Commission on Sustainable Development should launch a gender strategy for implementing the MDGs on water and sanitation.

23. Sanitation and water programmes should provide public information on the management of waste of all kinds, including human, household, industrial and agricultural waste.

Promoting women's participation and empowerment

24. Women must be involved as full partners both in assessing the impact of services on women and the poor and in crafting a more proactive approach that addresses women's needs as defined by women.

25. National and local governments must establish consultation and decision-making processes with stakeholders at all levels of policy and decision-making on water, sanitation and human settlements, involving, in particular, poor women, indigenous peoples and other disadvantaged groups.

26. A gender balance is a prerequisite in all of the activities of the Commission on Sustainable Development. Women must be supported in achieving equal representation at all levels and in each and every intergovernmental process related to human settlements, water and sanitation.

27. Institutional expertise, resources and contacts must support women's grass-roots initiatives in relation to water, sanitation and housing, including: soliciting and validating the expertise, priorities and solutions of grass-roots women's groups and providing resources, including funding, to these organizations to enrich, expand and consolidate their knowledge and skills base.

28. Using the expertise of local women, the gender aspects of natural disasters and global climate and environmental change processes must be studied and documented.

II. Children and youth

Challenges

29. Reviewing the report of the Chair of the twelfth session of the Commission on Sustainable Development, the agreements reached at the World Summit on Sustainable Development and the Millennium Declaration, children and youth identified the following challenges in the areas of water, sanitation and human settlements.

30. Governments, the United Nations and donor agencies should recognize that there is a gap in institutional frameworks that provide funding and technical support to youth and community-based groups. This gap exists in the criteria for funding allocations, and seems to exclusively affect youth organizations at the grass-roots

level, since often only well-established and well-recognized youth organizations are granted funding and support.

31. The implementation-oriented frameworks solely focus on funding large-scale highly technical options instead of low-cost locally applicable, affordable and available technologies and community-management approaches that confront community challenges in water, sanitation and human settlements.

32. An integrated approach at all levels to deal with all three themes in a holistic manner, with the involvement of all relevant stakeholders, is lacking.

33. There is continued scepticism surrounding the empowerment of children and youth and their initiatives.

34. There is insufficient communication on issues pertaining to water, sanitation and human settlements.

35. The human rights to adequate, affordable water, housing and sanitation are not fully respected.

In order to meet the targets set at the World Summit on Sustainable Development and Millennium Development Goals in the areas of water, sanitation and human settlements, we as children and youth have identified the following priorities for action.

36. A participatory approach involving all stakeholders and ensuring good communication and coordination among all actors should be promoted so that development decisions reflect the concerns of all and so as to encourage cooperation between governmental, civil society and private sector activities whereby:

(a) All relevant actors are involved in all levels of the project from planning, implementation and monitoring to the evaluation of projects;

(b) Different interests and responsibilities are acknowledged;

(c) Particular attention is paid to the central role and involvement of children and youth, women and community groups.

37. Children and youth participation should be facilitated and supported through the following methods:

(a) Building awareness and knowledge of children and youth on the themes of water, sanitation and human settlements through:

(i) The implementation of the Basic Education for All strategy, linked with poverty elimination and sustainable development strategies;

(ii) Peer education on indigenous sustainable practices, which should be supported with adequate resources, and indigenous intellectual property rights fully respected and maintained;

(iii) Recognizing, embracing, strengthening and funding children and youth peer education through informal and non-formal structures, while recognizing the critical use of media and technology in this regard;

(iv) Reviewing the education curricula during the United Nations Decade of Education for Sustainable Development (2005-2014), employing the themes of quality and critical thinking, life skills, water use, hygiene and sanitation in the

curricula; such education is aimed at changing the mindset of children and youth all over the world;

(v) Capacity-building and training for teachers on sustainable development;

(vi) The creation of jobs for youth integrated into all levels of the water and sanitation sector;

(vii) Mentorship programmes should be designed to boost the capacity of youth organizations to better coordinate their projects and maximize the use of their funding; such programmes will demonstrate the commitment of Governments and donors to constructive support of grass-roots initiatives;

(b) The establishment of youth councils;

(c) Technical, financial and political support should be given to local children and youth-spearheaded projects based on children and youth's own priorities, recognizing that children and youth are full partners;

(d) The involvement of community groups and the local private sector;

(e) Acknowledgement of the human rights to adequate, affordable water, housing and sanitation.

Recommendation on the water theme

38. Water is a public good and not a commodity to be traded; the regulation, control and management must always remain within the public sector.

39. The United Nations and its agencies should monitor and regulate water processes to ensure that decisions, especially decisions on water privatization, are not prescribed by donors to recipient (poor) countries as a condition for giving assistance.

40. Creative community water partnerships and traditional community-specific water management systems should be studied and documented.

41. Such partnerships should be examined to determine how they could be enhanced, expanded and/or duplicated in other communities, thus ensuring that local knowledge and resources are utilized and acknowledged.

42. Enhancing the role of young women in decision-making processes should go beyond mere talk. It should be made mandatory for national, regional and international reports to specifically highlight the percentage of young women participants and their level of participation.

43. An international body should be created through which organizations, communities and local governments can monitor, evaluate and report their concerns about the activities of corporations and governments and translate lessons learned into policy.

Recommendations on the sanitation theme

44. The sanitation indicators and targets should be cited and reaffirmed.

45. Access to basic sanitation should become part of the poverty reduction strategy paper process at the World Bank.

46. National Governments should create an enabling environment guaranteeing the participation of children and youth in development and implementation of basic sanitation projects.

47. National Governments should support scaling up the Water, Sanitation and Hygiene for All campaign, especially since youth is willing to lead the campaign.

48. Region-based and cultural and gender-sensitive approaches to basic sanitation should be recognized, if they exist, and developed and implemented if not.

49. Basic sanitation services should be available in every school; basic sanitation is a precondition for education.

Recommendations on the human settlements theme

50. A gender-sensitive approach in the development and implementation of all policies, including housing policies should be used.

51. An integrated approach to the provision of water, electricity, sanitation, drainage, human health and solid waste management should be adopted.

52. Appropriate master plans for major towns should be implemented and monitored, where they exist, and new ones prepared and implemented where they are non-existent or out of date.

53. Rural economies should be improved through the development of cottage and agro-allied industries to create job opportunities for rural dwellers, thereby stemming the tide of rural to urban migration.

54. At least 75 per cent of rural communities should be provided with social amenities to stimulate and sustain self-reliant development and curb rural to urban migration.

55. Private sector and community participation in activities relating to urban renewal, housing and infrastructure should be encouraged.

56. National human settlements data banks should be established to provide baseline information that can be used to better plan for sustainable human settlements.

57. Low-income families should be ensured access to and ownership of land.

58. In addition, there is a need to upgrade squatter settlements through the provision of basic infrastructure and services. In this process, beneficiary communities must not play a passive role, rather they must act as initiators of development. This will reduce donor dependency syndrome.

III. Indigenous peoples

Four key points

59. Governments must recognize the interests in, and the rights over, water resources, including customary uses, traditionally held by indigenous peoples, and to that end they must endure that indigenous rights are enshrined in national legislation and policy.

60. Improved services for better water management means: improved water governance that ensures effective use of existing resources and the active participation of indigenous peoples and all stakeholders; a substantial increase in financing water infrastructure and targeted financing schemes; and mechanisms for empowerment and capacity-building.

61. The effective development and management of water resources and the efficient and equitable provision of water supply and sanitation services are essential for poverty reduction, ecosystem protection and sustainable growth.

62. Indigenous peoples and local communities must be active participants in the implementation of the targets set out in the Johannesburg Plan of Implementation, and the Millennium Development Goals as well as in the implementation of integrated water resource management plans, the Integrated River Basin Management initiative and poverty reduction strategy papers.

Human right to water

63. Governments should acknowledge the basic human right to water, as affirmed by the Committee on Economic, Social and Cultural Rights of the Economic and Social Council in November 2002. Recognition of this right in national policy-making and legislation is critical to bringing about a basic approach to poverty eradication.

64. The obligations of States with regard to the protection of human rights and the environment must also be followed by the World Trade Organization and in the General Agreement on Trade Services and other regional and bilateral trade agreements.

Integrated water resource management

65. By 2005, all countries should have integrated water resource management processes completed or near completion.

66. Governments must recognize that in many indigenous cultures women are often the caretakers and users of traditional water resource systems and that, therefore, the mainstreaming of a gender perspective in integrated water resource management planning, implementation and monitoring is required.

67. An ecological approach, incorporating principles of indigenous traditional ecological knowledge on water management, should be implemented.

68. Indigenous traditional ecological knowledge principles of the sacred nature of water should be integrated into water resource management strategies.

Human settlements

69. Issues with regard to human settlements, in both urban and rural areas, deserve equal attention.

70. Development of action plans on human settlements and implementation of integrated land use planning and integrated water resource management plans must be strengthened to provide security of tenure and legal protection of the lands and territories of indigenous peoples.

71. Legal protection for the rights of indigenous peoples in development processes, planning and implementation of accessible water, sanitation, labour and other infrastructure projects for human settlements are outstanding obstacles, which must be addressed.

72. Safeguards must be put in place to protect vulnerable and poor communities, in particular those whose well-being is closely linked to biodiversity and natural world integrity, that are affected by human settlements and involuntary resettlement.

Water and sanitation

73. Regional and global goals should be developed into realistic and measurable local and national targets for improved water supply, sanitation and hygiene services.

74. Strategies that explore alternatives to large-scale private sector systems and technologies by seeking innovations in formal or informal small-scale water system providers, intermediate technologies, indigenous knowledge and community-based approaches should be adopted.

75. Developing and developed countries with indigenous tribal populations must develop and strengthen clear policies, targets, financing mechanisms and institutional frameworks to improve sanitation services and to assure that indigenous communities have access to a safe and adequate water supply.

76. The public sector and local government must plan, implement, maintain and own water and sanitation services, ensuring that they are demand-responsive and people-oriented. Governments must commit to public sector delivery of water services.

77. In indigenous communities, mechanisms giving indigenous peoples the option to control and manage their own water and sanitation systems must be provided.

Governance

78. Developing countries need to take primary responsibility for establishing good water governance and water management plans and to ensure that water is integrated into national poverty reduction strategies.

79. Governments must enhance the participation and mutual partnership of indigenous peoples in all aspects of agricultural water use, including the development and management of water resources and water and sanitation services, and must recognize indigenous peoples' interests in water use, allocation and customary uses.

80. Governments, the private sector, donors, financial institutions, NGOs and intergovernmental organizations must implement policies that ensure that indigenous peoples have the right to free prior and informed consent and consultation by cultural appropriate means in all decision-making activities and all matters, including partnerships. In many indigenous communities, collective decision-making enhances self-development.

Financing and investments

81. Financial contributions need to be increased from all main sources, including national Governments, donors, multilateral financing institutions, commercial lenders, private investors, voluntary donations and other sources, and made available to reach countries most in need of water supply and sanitation.

82. National and international capital should be available at the local level, and to sub-sovereign and indigenous peoples, to provide financing for small-scale, technologically appropriate water infrastructure and sanitation services.

83. International and domestic systems of restoration, financing, investment and compensation should be established in partnership with indigenous peoples in order to restore the integrity of damaged watersheds and ecosystems.

Privatization and the commodification of water

84. Water and water services must be kept distinct from the negotiations of the General Agreement on Trade Services, the World Trade Organization, and other multilateral and regional trade agreements.

85. The World Bank, the International Monetary Fund (IMF) and regional banks, such as the Asian Development Bank, the African Development Bank and the Inter-American Development Bank, must stop the imposition of water privatization or "full cost recovery" as a condition for new loans and the renewal of loans to developing countries.

86. Indigenous interests and rights must be respected in international agreements on trade and investment.

Capacity-building

87. Capacity development, which is a main focus of water policies, needs to be amplified with more action and targets, with particular emphasis on building capacities in indigenous and local communities.

88. Capacity-building and appropriate technological transfer initiatives that recognize indigenous traditional practices of water management, which are dynamically regulated systems, must be implemented. Capacity-building includes developing educational programmes on indigenous traditional ecological knowledge of water systems.

89. The importance of cultural diversity of water issues should be a guiding principle in the development of educational and capacity-building initiatives, as well as in designing assessment and monitoring methods.

Government and corporate accountability

90. Political, technical and legal mechanisms should be developed at the national and international level so that States, the private sector and international financial institutions can be held accountable for any action (or inaction) that threatens the integrity of water systems.

Cross-cutting issues related to energy, climate change and mineral extraction

91. Governments, international financial institutions, bilateral donors and the private sector should cease promoting mega-projects without reference to international agreements and should always incorporate the recommendations of the World Commission on Dams into water and energy planning processes, including reparations.

92. It is imperative that States fulfil the mandates of the United Nations Framework Convention on Climate Change and the Kyoto Protocol since weather changes are causing droughts, forest fires, the flooding of land and coastal areas and small island States as well as the loss of snow cover, glaciers and ice conditions within the polar, arctic and mountain regions that comprise the biological integrity of the river systems, water basins and oceans.

93. Governments must call upon the World Bank Group to take the findings published in its Extractive Industries Review seriously and implement all the recommendations contained therein. Failure to implement those recommendations will be regarded as a failure of the World Bank to act in good faith with indigenous peoples, local communities, civil society, local authorities and all stakeholders, given that mining and mineral extractive activities consume vast amounts of water resources from aquifers, groundwater and surface water systems and affect human and ecological health via water contamination from such methods of extraction.

IV. Non-governmental organizations

94. Agendas and action programmes on water, sanitation and human settlements have been accepted in various international forums. In practice, however, NGOs have evidence that in many countries:

(a) Participation is widely accepted but not adequately implemented;

(b) Fragmentation of responsibilities for water and sanitation between government agencies is problematic;

(c) Community-based management is successful but not promoted;

(d) Prioritization for the poor rarely occurs;

(e) Impact on the environment is not considered — integrated water resource management plans are missing;

(f) There is insufficient consideration of cultural diversity and gender;

(g) Objectives don't link to local financing structures and capacities.

Recommendations of non-governmental organizations to achieve the goals set out at the thirteenth session of the Commission on Sustainable Development

95. Governments should significantly increase their political and financial commitment to the water, sanitation and human settlements sectors, taking a poverty and rights-based approach with defined criteria for implementation.

96. Considering that access to sufficient water for basic human needs and housing are established human rights, they should be incorporated into national law, backed by specific measurable plans for implementation.

97. An integrated sector-wide approach should become the basis for coordination across government ministries, bringing together agencies responsible for water, sanitation, environment, health, agriculture and education, including the cross-cutting theme "Sustainable consumption and production" and involving all stakeholders.

98. Integrated water resource management should be used for management and planning, providing a model for the long-term environmental security of water resources and requiring a long-term political and technical push, which should be operationalized locally.

99. Many community groups and NGOs, valuable entities that are successfully managing local resources, and are willing and able to do more to support actions, communicate impacts, local demands and knowledge, require promotion by and support of Governments as well as access to information and decision-making. Stakeholder-led platforms that monitor and discuss policies on water, sanitation, hygiene promotion and habitat have proven successful in many different contexts.

100. Culturally and gender-sensitive approaches to sanitation must be developed, keeping in mind that lack of proper sanitation is a major cause of poverty through ill-health.

101. Unresolved transboundary and local conflicts over the quantity and quality of water can block access to water resources by people who need it to live. Responsibility for the resolution of such conflicts must be urgently addressed at all levels.

The goals of the thirteenth session of the Commission on Sustainable Development can only be delivered by governance structures that allow local communities to participate and provide a basis for the equitable allocation of water. Strategic frameworks and delivery plans should include the steps set out below.

102. The participation of local communities, farmers, business and NGOs in a multi-stakeholder framework must be ensured, whereby:

(a) All relevant actors are involved in the planning, implementation and monitoring of projects/policies as equal partners from the outset;

(b) Different interests and responsibilities are acknowledged;

(c) Particular attention is paid to the involvement of community groups, women and children.

103. Institutional capacities must be strengthened, aimed at:

(a) Changing the institutional mindset;

(b) Optimizing the use of the knowledge of local communities and institutions;

(c) Setting up educational and social marketing campaigns on sanitation, hygiene and wise use of water.

104. Dialogues, networks and mechanisms for monitoring, evaluation and reporting, aimed at sharing experiences, determining the lessons learned and translating them into policy, should be initiated.

105. Monitoring and reporting on progress, distinguishing between impacts according to different gender, ethnicity and cultures, must be carried out.

106. Infrastructure development is required, ensuring respect for the principles of environmental and social sustainability, including:

(a) Recognition and implementation of existing safeguard policies for large-scale infrastructure, such as the recommendations of the World Commission on Dams, as due diligence, by Governments and financiers;

(b) Use of full cost-benefit analysis to assess various options before implementation;

(c) Upscaling the use of "soft" engineering techniques for water resources management and work within natural systems.

107. Mobilizing resources for long-term investment in the water, sanitation and human settlements sectors requires action at all levels. Simultaneously, the needs and desires of local stakeholders must be heeded; they should not have to pay for services they cannot afford or do not need.

108. The Governments of developed countries need to reverse the declining levels of official development assistance (ODA) to the sectors, focusing on countries most in need. Multilateral and bilateral programmes on the same target group and/or region need to be coordinated.

109. Tariff structures for water use must be set up, although they must not prevent poor people's access to affordable services and should include methods for valuing their contributions "in-kind" towards operation and maintenance. Water and related services must never be traded as a commodity.

110. Private sector participation is not the solution to the financial gap and must never be imposed as a condition of grants or loans. Water is a public good, and regulation of and control over water must always remain within the public sector.

111. The collection of accurate data for consolidation into national budgeting and planning needs to be systematized, and used to prioritize the needs of the poorest.

112. Successful pilot cases where innovative mechanisms have been used to pay for ecosystems services should be studied and used as models.

113. Increasing access to sanitation and hygiene promotion is problematic, but there are many good examples to be adopted, including:

(a) City-wide sanitation strategies with solutions adapted to the entire population;

(b) Social marketing and educational programmes on hand-washing and hygiene;

(c) Scaling up the grass-roots-led total sanitation campaign begun in South Asia by the Water, Sanitation and Hygiene for All campaign;

(d) Technological choices that meet the needs and demands of the public, including decentralized systems, ecosanitation and dry toilets, as well as information to promote educated choice.

114. The reform of outdated laws, using a participatory process, is urgently needed, along with capacity-building and training for all actors in complying with and monitoring legislation, including:

(a) Legislation for integrated water resource management and water efficiency strategies that conserve watersheds and guarantee equitable sharing of water between users, underpinned by an effective environmental regulatory framework;

(b) Provision of land tenure for poor people in urban slums, in particular for improving the legal recognition of women's rights;

(c) Provision of legal frameworks for local municipalities and civil society groups to safeguard their rights, quality standards and affordability when third parties are involved in providing water or housing;

(d) Undertaking reforms to separate the powers of water service providers and water regulators, which should always remain under public control;

(e) Recognition of small-scale private sector water suppliers, within an environment where all service providers are regulated; and ensuring that new service providers will not be promoted without a properly established and funded regulatory framework;

(f) Regulation to prevent infill of water bodies from urban sprawl and depletion of the water table from mega-cities;

(g) Cooperation between the United Nations Environment Programme (UNEP) and the United Nations Human Settlements Programme (UN-Habitat) to provide capacity-building and guidelines on urban management.

V. Local authorities

115. Water, sanitation and human settlements are focal areas of local government action. At the World Summit on Sustainable Development, Governments agreed to enhance the role and capacity of local authorities as well as stakeholders in implementing Agenda 21 and the outcomes of the Summit and in strengthening the continuing support for local Agenda 21 programmes and associated initiatives and partnerships. The policy recommendations adopted at the thirteenth session of the Commission on Sustainable Development should further support those commitments.

Challenges for local government

116. The challenges to local government in the water and sanitation sector include:

(a) Poor or non-existent local water governance;

(b) Lack of water and sanitation management tools;

(c) Poor access to financing for water and sanitation infrastructure and capacity-building;

(d) Poor understanding of the interlinkages of water and sanitation with gender issues, health, education, poverty and economy.

117. The challenges to local government in the human settlements sector include:

(a) Rapid urbanization as a result of rural to urban migration;

(b) Unplanned "informal" settlements;

(c) Poor planning regulation and building standards;

(d) Increasing homelessness and a decline in investment in social housing;

(e) Regulatory gaps in land reform, housing, planning and building policies.

118. The needs of local governments identified in the report of the chair of the thirteenth session of the Commission on Sustainable Development include:

(a) Further decentralization of services and the devolution of decision-making;

(b) Further involvement of local communities, especially women, in planning and policy-making;

(c) Capacity-building for local water governance to strengthen analysis and management of solutions;

(d) Understanding of partnerships as an effective implementation tool, although not as a substitute for government leadership and action;

(e) Further mobilization of local finance and other resources (technical, human, etc.).

Strategies and programmes

119. Local authorities submit the following recommendations on strategies and programmes:

(a) It is necessary to establish local to national links in order to ensure a coherent approach to national poverty reduction and sustainable development plans, which should better reflect local priorities, for example, through supporting local strategies and subnational processes;

(b) Strengthening of the local government level: capacity-building programmes for local decision makers and municipal staff are needed to support local strategic approaches, including through national local government associations and networks of municipalities.

Legal, regulatory and institutional policies: a framework for decentralization and subsidiarity

120. The following principles should be further supported by Member States:

"Decentralized governance for development is a key area of democratic governance which is crucial to attaining human development and the Millennium Development Goals" (United Nations Development Programme (UNDP) 2004).

"Principles of 'good urban governance' are sustainability, subsidiarity, equity, efficiency, transparency and accountability, civic engagement and citizenship and security" (UN-Habitat).

121. Local authorities submit the following recommendations on legal, regulatory and institutional policies:

(a) Regulatory powers (ability to enforce local guidelines, policies, and create revenue through taxation and fees) and resources (finance, technical, management and governance capacity) should be decentralized;

(b) Local-level organizations should be involved in national planning strategies and reporting;

(c) Land reforms should be undertaken to provide secure tenure, especially for the poorest.

Financing: enhanced local autonomy

122. Improving access to financing for targeted service provision requires increased financial autonomy of subnational and local authorities. This is at the core of decentralization and subsidiarity. Financial autonomy can bring about both greater efficiency, by reflecting local priorities better, and accountability, through establishing closer relationships between service providers and recipients.

123. Fiscal decentralization should be a core component of poverty reduction programmes. To improve mechanisms for mobilizing local fiscal resources and local spending, local financial administrators must be trained in revenue generation and accountability. Such activities require additional resources from Governments and external donors.

124. Local authorities submit the following recommendations on financing:

(a) Tools and mechanisms (e.g., pooling of local governments regionally to access funds jointly) to increase financing of local infrastructure (water, sanitation and housing) should be developed;

(b) Local access to financing and local revenue creation (for example, the capacity to raise taxes and fees) should be made possible;

(c) With regard to sustainable consumption and production, national policies should be enacted and networks of municipalities encouraged to purchase goods and services (for example, transport, shelter, water and sanitation delivery) that meet sustainability criteria.

Capacity-building

125. Elected local government officials and municipal staff require capacity-building in a number of areas to enable sustainable local development. Support is needed through national local government associations, municipal networks and cooperation between cities, in addition to national and donor support.

126. Local authorities submit the following recommendations on capacity-building:

(a) Good local water governance, with human rights, sustainability and pro-poor orientation as the basis of any capacity-building, should be instituted;

(b) Local government decision-making and management skills, enabling local politicians and officials to be effective managers of water, sanitation and human settlements in the short to long term, should be introduced;

(c) Targeted capacity-building for key local practitioners, including planners, environmental health officers, sanitation and waste service providers and financial administrators, should be carried out;

(d) Skills for participatory approaches (civic dialogues, negotiation, conflict management and consensus building) to support active community involvement in local planning, decision-making and service delivery should be strengthened;

(e) Information for decision-making, strengthening local capacity for data collection and analysis to enhance monitoring, reporting and decision-making and providing better information to national Governments, should be made available.

Recommended actions

127. Local authorities submit the following recommended actions in the water and sanitation sector:

(a) The central importance of good local water governance must be recognized;

(b) Mechanisms should be developed to increase financing for local water and sanitation infrastructures, including a thorough assessment of the recommendations made in the report of the World Panel on Financing Water Infrastructure as soon as possible;

(c) Decentralization and local government engagement with other stakeholders has a direct impact on water governance, in which context issues of gender and other inequalities can be addressed, building on lessons learned from local Agenda 21 participatory processes;

(d) Capacity-building of local government leaders is crucial for a full understanding of the implications of various options for service delivery, including privatization and partnerships;

(e) Affordable service provision, for example housing programmes that help low-income households afford better provision of water and sanitation, are essential;

(f) Inhabitants of informal settlements must be provided with tenure, allowing utilities to extend provision for piped water and sewer connections.

128. In the human settlements sector, local authorities recommend:

(a) Service delivery to informal and illegal settlements requiring basic services should be a commitment by all stakeholders, including all levels of government;

(b) National housing standards should be re-examined with regard to sustainability: national support is required to ensure that housing standards are applied;

(c) Local involvement is needed in national, multilateral and bilateral schemes to make housing affordable for all.

129. Local authorities recommend the following general actions:

(a) National strategies need to foster dialogue and cooperation between urban and rural jurisdictions and encourage greater regional coherence;

(b) Governments and international agencies should: encourage networking, technical exchanges and study visits to support local learning and capacity-building for sustainable development; provide additional support to national, regional and international urban sustainability programmes; and promote more targeted information-sharing, enabling cities to learn from each other;

(c) Governments and international agencies should encourage local action.

VI. Workers and trade unions

130. The workers and trade unions major group asks delegates to ensure that the following recommendations are reflected in text negotiated at the thirteenth session of the Commission on Sustainable Development as they grow out of the outcomes contained in the final report of the twelfth session of the Commission (E/2004/29).

131. **Outcome No. 1: Collaborative initiatives to strengthen political will and coherency.** In approaches to sustainable development by engaging trade unions and other civil society groups to raise political consciousness and engagement, the Commission should give its support to the proposals contained in the report of the Panel of Eminent Persons on United Nations-Civil Society Relations (A/58/817).

132. The Chair of the twelfth session of the Commission noted a lack of political will and coherency at the national and international levels, and ministers agreed that more political commitment and strengthened governance are required at all levels to meet targets.

133. More information and engagement tools in civil society will provide political direction and support to politicians who support change, as well as an electorate more willing to make lifestyle changes and sacrifices.

134. **Outcome No. 2: Tools and strategies to support democratic and participatory governance and action**. The development of social indicators, country profiling and reporting within the framework of adopted country plans and strategies should be used as tools to support activities in this regard.

135. At its twelfth session, the Commission recognized that strong institutions and good governance, including the participation of civil society, are key to mobilizing investment, ensuring the proper use of scarce government resources and providing service delivery to the poor and cited a lack of complete, coherent information as a major obstacle to implementation of sustainable development initiatives.

136. At the thirteenth session of the Commission in 2005, trade unions will circulate the initial results of a collaborative effort with other groups to employ common indicators as the basis for country-by-country sustainable development profiles (see http://www.tuac.org/statemen/communiq/kit-Count-profile.pdf).

137. **Outcome No. 3: Access to water, sanitation and habitation as fundamental human rights.** At its twelfth session, the Commission noted the concerns expressed by major groups that water is a fundamental right, not an economic good, requiring significant financial and human resources, as well as regulatory frameworks and public sector provision. It noted a lack of leadership by Governments in the debate over privatization of water resource management and called for a clear distinction between water for basic human needs and water for economic uses as a basis for socially balanced pricing in national plans and implementation strategies.

138. **Outcome No. 4: Partnerships that support public ownership and regulation.** United Nations partnerships must abide by United Nations principles rather than posing as substitutes for vital human services. More research on public/private partnerships is needed.

139. At the twelfth session, major groups asked that all United Nations-approved partnerships contribute to sustainable development, particularly in the social dimension. The principles contained in General Assembly resolution 58/129 call for joint decision-making, information-sharing and implementation, implying worker participation in workplace partnerships. Concern was expressed that some public/private partnerships may be little more than substitutes for government ownership or the regulation of vital human services and requested that more research be done on the successes and failures of these experiments as compared to public sector models.

140. The role of corporations must be clearly distinguished from those of government, and concrete measures should be adopted to evaluate and report in company performance in areas of social and environmental responsibility.

141. **Outcome No. 5: Rights of workers and trade unions.** The rights of workers and trade unions are integral human rights. Member States should be encouraged to ratify and implement applicable International Labour Organization (ILO) Conventions.

142. Trade unions allow workers to defend their interests and take part in action for sustainable development in the workplace and the community. Not only are good industrial relations recognized in the Political Declaration adopted at the World Summit on Sustainable Development, all Member States are bound by the ILO Declaration on Fundamental Principles and Rights at Work of 1998. Failure to address widespread denial of the rights of trade unions and workers indicates a disconnection between ministries that uphold the ILO principles and those that attend the sessions of the Commission on Sustainable Development, as well as related incoherence in governance structures and policy implementation.

143. **Outcome No. 6: Decent employment.** Effective employment strategies should be encouraged as key to poverty, the provision of access and other problems encountered in the world today, providing leadership in the "jobs versus environment" debate.

144. At its twelfth session the Commission recognized the disproportionate effect that unsustainable patterns in water, sanitation and human settlement have on the poor, women and other vulnerable groups and confirmed that decent employment is a key to providing access and other poverty solutions in these areas. The Commission called for a clear alignment of national strategies to MDGs through policy and action plans linking employment and poverty alleviation, with attention to the role communities and major groups might play.

145. The negotiated text adopted at the thirteenth session of the Commission must also support "just transition" to protect the livelihood of workers in the course of change and win their support and that of their communities for sustainable development goals.

146. **Outcome No. 7: Workplace focus to change production and consumption patterns.** Trade unions and workers call for employer/trade union cooperation in

joint workplace assessment and action programmes as well as for supportive trade and investment frameworks.

147. At its twelfth session the Commission linked unsustainable patterns of production and consumption in water, sanitation and human settlement to such cross-cutting issues as poverty eradication. The thirteenth session must reinforce this focus and encourage countries to implement workplace strategies that promote worker and trade union participation (see outcome No. 5) for joint approaches to saving water, eliminating wastes and securing proper housing for communities. It should be standard practice that sourcing companies require suppliers and subcontractors in their supply chains to respect these standards.

148. **Outcome No. 8: Occupational and public health links.** The links between HIV/AIDS, economic opportunity and access to services in a strong public sector must be highlighted and support given to the observance of International Commemoration Day for Dead and Injured Workers on 28 April.

149. At its twelfth session, the Commission drew attention to the connections between HIV/AIDS, economic opportunity and access to services in communities, as well as the urgency of addressing such "tenure" issues as the inheritance rights of women.

150. To recognize the plight of over 2.2 million workers who die in the workplace every year and the 160 million more who suffer from work-related diseases, the text adopted at the thirteenth session should reinforce the link established at the World Summit on Sustainable Development between occupational health and safety and public health analyses and programmes that build on links between workplace, public health and the environment.

151. **Outcome No. 9: More inter-agency and intergovernmental cooperation.** Multilateral institutions and instruments that focus on the social dimension must be given a clear mandate. Efforts to redefine trade rules, investment frameworks and economic instruments to support sustainable development should be continued.

152. At its twelfth session the Commission reaffirmed the importance of inter-agency work, including the work of the international financial institutions, to achieve progress in water, sanitation and human settlements, under the coordination of the United Nations System Chief Executives Board for Coordination. The text adopted at the thirteenth session must build on this by encouraging investment frameworks that support national action and public sector provision by such bodies as the European Union, the Organization for Economic Cooperation and Development (OECD), ILO, UNEP and the World Health Organization (WHO).

VII. Business and industry

Introduction: action by business for water and sustainability

153. The business community shares the concern about the scale of the challenge of meeting the goals and targets for water, sanitation and human settlements agreed to in the Johannesburg Plan of Implementation and the Millennium Declaration.

154. The community recognizes, however, that to achieve the necessary rate of progress requires engagement of all sectors of society. Business can only operate effectively in a strong and stable legal, regulatory and economic context.

155. The present document identifies the following priorities for action, which will enable the business community to contribute more effectively:

(a) Responsibilities for action;

(b) Unlocking finance;

(c) Catchment management and planning;

(d) Infrastructure and technology;

(e) Effective partnership building.

Responsibilities for action

156. Global targets for water, sanitation and human settleme .s must be broken down into country targets so that national Governments and their partners can improve measurement, management and reporting of progress.

157. Governments and donor agencies should encourage an understanding of how water and sanitation contribute to economic development and improved health and education, with the aim of raising the profile of water and sanitation priorities in national poverty reduction strategy papers.

158. A focus on improving hygiene education and developing appropriate sanitation facilities should be encouraged, as these steps will bring significant health benefits on a local level.

159. Land tenure issues need to be tackled to enable the provision of improved water and sanitation services to those who most need it.

160. The devolution of responsibility for the provision of water to local authorities requires capacity-building focused on contract negotiation and sustainable economic management. Government agencies and regulators need better training to oversee operator performance, irrespective of whether the operator is public, private or from the informal sector.

161. Businesses providing water services should encourage effective economic, quality and environmental regulation and conform to its requirements.

162. Water users require capacity-building to engage in stakeholder consultations and to improve community water management. Particular emphasis should be given to the involvement on women, who are often responsible for domestic water management.

Unlocking financing

163. With the following enabling conditions in place, business recognizes the role of private sector financing alongside public sources of investment.

164. Governments and donor agencies should emphasize that access to financial resources goes hand in hand with good governance by creating environments favourable to private investment, reducing risk through combating corruption and providing credit support through grants, loans and/or guarantees.

165. Appropriate models for tariffs and taxes should be developed, including local community inputs regarding how they value the different options for water use. Civil society organizations should promote community engagement in this process.

All models should allow Governments to protect the public interest and ensure that investors and service providers are fairly compensated for the services they provide.

166. Governments and donor agencies should support innovative partnerships between local governments, the local and international private sector and local and international NGOs, permitting the use of ODA to initiate these shared risk models.

167. Donor agencies should streamline the process of releasing ODA marked for water and sanitation.

Catchment management and planning

168. States should implement integrated water resource management programmes and promote harmonized data capture and management systems. States may require capacity-building to manage the linkages between integrated water resource management legislation, planning, implementation and monitoring processes.

169. Businesses should contribute to integrated water resource management by taking a responsible approach to their impact on water throughout the life cycle of their products and processes. They should share their understanding of these impacts and how they can best be managed with local decision makers. Major water users should develop water management plans with the input of appropriate stakeholders.

170. The potential implications of climate change should be taken into account by Governments, business and civil society as they develop their action plans.

171. Governments, business and civil society should view water as a cyclical rather than a linear process, encouraging greater focus on the re-use of waste water.

172. Irrigation practices that use water inefficiently may need to be changed to allow other uses for the water, such as for municipal supplies or to protect ecosystems.

173. The further development of full cost accounting should be encouraged to promote understanding of the economic benefits derived from ecosystem services and to ensure that the environmental costs and benefits of different water uses are fully accounted for.

174. Water treatment and sanitation facilities require significant energy inputs and should be planned in the context of utilizing or developing appropriate local energy sources, including the renewable electricity generation potential of the facilities themselves.

175. Water resources development and management should be planned for a hydrological unit, such as a drainage basin as a whole or a sub-basin. Transboundary cooperation should be actively encouraged.

176. States should ensure that catchment management plans prevent ecosystems being exploited beyond their natural capacity to recover.

177. Catchment management plans should consider the needs of all stakeholders (domestic, agricultural, industrial, urban and rural) and involve them in planning and decision-making processes. Education and awareness-raising should be encouraged to enable the effective participation of stakeholders.

178. In both the developed and developing world, Governments, business and civil society should work together to develop and implement educational programmes to

bring about a shift to more efficient water use in the domestic, agricultural and industrial sectors.

Infrastructure and technology

179. Governments, business and civil society should work in partnership to lever business resources to transfer knowledge and skills and to share technologies and cooperate to accelerate their dissemination. Partners should assist business in building local capacity to improve community water and sanitation facilities. Business should create adaptable, affordable and effective solutions, such as desalination and rainwater harvesting.

180. Wherever safe piped water supplies are unavailable, point-of-use water treatment and safe storage should be implemented immediately. Such solutions should not be seen as a substitute for appropriate infrastructure that can provide substantial economic benefits and reliability of supply.

181. Multinational businesses should help build the capacity of local industry, including small water service providers, so that they can undertake operational, maintenance and renewal works, improving sustainable economic management through avoiding dependence on imported skills.

Effective partnership building

182. Public versus private delivery of services is not the issue. The provision of water and sanitation services is generally recognized as a public service, whether operated by the public or private sectors. Governments, donors and civil society should ensure that they support solutions that are both efficient and acceptable to the local community.

183. New management models based on clearly defined partnerships should be encouraged. These may include different combinations of local and international NGOs, businesses, public sector operators, local water sellers and fountain or well operators.

184. Much of the success of a partnership lies in a common commitment to understanding the challenge faced, building trust and solving problems together. Training on how to ensure successful partnerships should be encouraged for all participants.

Conclusion

185. It is vital that Governments and all major groups recognize the enormous and very diverse contribution that business will make to the development of new and sustainable models for meeting the world's needs for water, sanitation and human settlement. They should actively seek the widest possible engagement from the business sector. The business sector is committed to positive engagement with all stakeholders to meet the MDGs.

VIII. Scientific and technological community

Need for better harnessing of science and technology

186. At its twelfth session, the Commission concluded that improved harnessing of science and technology would be an indispensable condition for meeting the MDGs and implementing the recommendations in the Johannesburg Plan of Implementation related to water, sanitation and human settlements.

187. Investments in science and technology continue to be inadequate, especially in developing countries where funding for research and development is often less than 0.5 per cent of annual gross domestic product (GDP). Investments in the natural, social, engineering and health science fields geared towards sustainable development are among the highest yielding investments that a nation can make.

188. The scientific and technological community is committed to implementing necessary changes in the conduct of its work and to developing strong partnerships with other stakeholders in sustainable development. These changes include: making scientific research more policy relevant; integrating the environmental, social and economic pillars; following broad-based participatory approaches in defining a research agenda; and addressing a variety of geographic scales from local to global.

189. Based on the results of the twelfth session, the scientific and technological community submits the following recommendations to the thirteenth session of the Commission on Sustainable Development.

Strengthening capacity to monitor freshwater and to develop integrated indicator sets

190. Given the widespread lack of reliable and easily accessible data on water resources, all countries should review and in most cases strengthen water-related national data-collection/long-term monitoring networks, including data on water quality, needs, demands and supplies and real-time data for flood and drought forecasting.

191. Freshwater-related components of existing global environmental observing systems should be strengthened and made fully operational, including through enhanced support to the Integrated Global Observing Strategy and the new Global Earth Observation System launched by the National Oceanic and Atmospheric Administration of the United States of America.

192. National and regional assessments on water, sanitation and human settlements issues should be carried out in a participatory and integrated manner; particularly vulnerable regions should be identified.

193. Integrated indicator sets for measuring trends of key indicators and progress on goals and targets should be reviewed, developed and put into application.

Building enhanced national and regional scientific and technological capacity, with particular attention to developing countries

194. All countries to review and, in most cases, to significantly increase their investment in research and development, including human and institutional scientific and technological capacity-building in the natural, social, engineering and

health science domains, geared towards solving water, sanitation and human settlements problems.

195. There is a major need to bridge the North-South gap in scientific and technological capacity; developed countries and international organizations should support measures in those developing countries that are lacking in such capacity.

196. Existing specialized training and retraining curricula should be reoriented to ensure the education of a body of skilled professionals, highly knowledgeable on how to advance towards sustainable development goals in the areas of water, sanitation and human settlements. Enhanced support to such improved training facilities should be provided worldwide, in particular in developing countries.

197. Water, sanitation and human settlements should be given high-priority in formal and informal education at all levels, including within the framework of the activities of the United Nations Decade of Education for Sustainable Development.

198. Particular attention must be given to providing education and training for women.

199. More appropriate technologies (see E/CN.17/2004/10/Add.3, paras. 24-40), with particular attention to developing countries and low-cost technologies, should be reviewed, developed and put into application. Enhanced North-South and South-South transfer of technologies should be supported.

Improving scientific knowledge and knowledge sharing

200. All countries should increase their support for interdisciplinary, policy-relevant research involving the natural, social, engineering and health science domains, focused on sustainability issues related to water, sanitation and human settlements, with particular attention to research addressing the local context and the interlinked socio-economic and biophysical systems.

201. International scientific cooperation activities, including support for established interdisciplinary programmes in this field, for example through the newly launched Global Water System Project, should be enhanced.

202. Improved adaptive management strategies and water governance regimes to reduce the vulnerability and increase the adaptive capacity of water systems at different scales should be developed.

203. Activities aimed at improved knowledge sharing, for example, through expanded networking and the strengthening of scientific and technological clearing house functions should be supported, with particular attention given to the needs of developing countries.

204. Efforts by the engineering community to enhance knowledge and local adaptation of clean and, whenever appropriate, traditional technologies should be encouraged since, in many instances, traditional, culturally adapted, low-cost technologies offer viable solutions.

205. A strong and sound scientific and technological base for a 10-year framework of programmes for sustainable consumption and production should be developed, as called for in the Johannesburg Plan of Implementation, including due attention to the water, sanitation and human settlements sectors.

Making scientists, engineers, educators and decision makers better partners in addressing sustainable development issues related to water, sanitation and human settlements

206. The scientific and technological community is committed to developing strong partnerships with other stakeholders concerned. Partnerships are required at local, national, regional and global levels with Governments, the private sector and all other major groups of civil society. Governments should support such partnerships and encourage improved interaction between scientists, engineers and educators and decision makers and civil society groups.

207. Innovative scientific and technological advisory instruments and processes at local, national, regional and global levels should be expanded and strengthened, including the screening of the scientific validity and robustness of different policy options.

208. Linkages between scientists, engineers and farmers on efforts to improve water management in agriculture should be enhanced, in particular by using an ecosystems approach.

209. Entities in the private sector should be encouraged to contribute to integrated water resource management by analysing how their activities impact on water throughout the life cycle of their products and processes and to share their knowledge widely in the scientific and technological community, as well as with decision makers at all levels.

210. Partnerships that blend traditional and scientific knowledge related to water, sanitation and human settlements, in collaboration with the indigenous peoples, farmers and business and industry major groups should be supported.

211. Activities aimed at improved scientific education and communications for sustainable development and at accelerating the process of moving from the generation of knowledge and technology to their practical application should be supported.

212. All of the above issues have also been extensively addressed in the dialogue paper presented at the twelfth session of the Commission by the scientific and technological community (E/CN.17/2004/10/Add.3), which is available on the Commission's web site as well as on the United Nations Official Document System in the six official United Nations languages.

IX. Farmers

Access to and management of freshwater resources in agriculture

An alarming situation

213. The agricultural sector is being called upon to double its production capacity over the next 25 years, using essentially the same resource base, in order to feed an additional 1.5 billion people by 2025.

214. At the present time, agriculture already uses 70 per cent of freshwater resources. In order to conserve water usage, farmers will have to use the best practices available to produce "more crop per drop".

215. Appropriate water and food strategies must be country, regional and local specific, but more particularly, they must take into account the specific needs of the different user communities and find appropriate means to balance them, without putting any of them on the fringe of decision-making processes.

Main causes of water shortages

216. Inefficient use of the water resource is often a consequence of:

(a) Weak infrastructure;

(b) Lack of a good functioning water authority with the right competencies;

(c) Poor maintenance of irrigation systems;

(d) Lack of incentives for efficient use of fresh water;

(e) Lacking drainage infrastructure or poor maintained drainage systems;

(f) Unsuitable crops which cause inefficiencies;

(g) National and international water management schemes are often lacking;

(h) Countries are often not willing to reach agreement on cross-border rivers and aquifers.

217. Farmers and their organizations often lack access to decision-making pertaining to water issues, either because they are not trusted enough or because they do not have the capacity to get involved actively.

Water for agriculture as a priority on national and global agendas

218. Water is necessary for food production, health and the livelihoods of millions of farm families. It is a public concern. Water is not a tradeable good. Increased priority is needed for water for agriculture both at the national, regional and international levels.

219. Water security should be recognized as a key to poverty alleviation. Particular attention should be given to farmers and the rural population because they are the first victims of water problems.

220. The International Federation of Agricultural Producers calls on national Governments to give priority to investment in water for agriculture and rural development as well as for the protection of the water resources in their national budgets and asks them to set clear priorities concerning water use.

221. While the quality of water is a prerequisite for sustainable development, its protection must be the shared responsibility of all stakeholders. Establishing voluntary agreements between local and regional authorities and between water stations and farmers are important in this regard.

222. The Fede.ation also calls for appropriate mechanisms for technology transfer and locally friendly, low-cost technology, and asks that they be made available to farmers. National and international political commitment is essential to translate this into action and to ensure sustainability and equity in the distribution of water resources.

223. The Federation urges relevant international organizations to include in their work programmes not only the questions of gender balance and indigenous peoples' rights, but also a requirement that they engage with local farmers' organizations as partners in all stages of development projects.

224. The Federation favours water management strategies that put emphasis on stewardship programmes for farmers who adapt their water management practices to meet environmental requirements.

225. The Federation urges the creation of a United Nations convention on water and poverty, including funding mechanisms.

226. The Federation recognizes the need to create an international mechanism to discuss, regulate and arbitrate over the usage and abstraction of water, especially in regionally shared basins.

227. The Federation calls for an integrated approach to water issues. National and regional water resources policies should be linked with other international agreements and processes related to environment, development, finance and trade.

Governance and regulation

228. National Governments are the guardians of the water resources. The principles of conservation, management and the use of water must be regulated by law, including guaranteeing access to water for everyone.

229. Farmers, including women farmers, need secure water supply rights and transparent legal frameworks, taking into account local socio-economic, cultural and hydrological contexts.

230. National governments are responsible for:

(a) Setting up a general framework with clear water policies and schemes through the establishment of a water code and national water institutions;

(b) Taking stock of the actual availability and use of water resources and identifying best water use practices;

(c) Developing risk management tools for farmers;

(d) Setting up clear priorities for the different uses of water resources.

231. While the private sector has a role in water delivery, its methods will not be cost-effective in remote rural areas, where the provision of water should remain a government responsibility.

Towards an integrated water management approach

232. nternational basins cover 45 per cent of the land surface of the Earth, touching the lives of 40 per cent of the world's population and connected to 80 per cent of the global river flow. The promotion of international river basin cooperation through decentralized targeted action for each river basin, with the full recognition of all uses and users and in consultation with all stakeholders, is needed. Such an appro ch would avoid tensions between competing users and help increase efficiency in water usage.

233. The management of water should go beyond technical and economic aspects by including social aspects. Education and awareness-raising help change basic attitudes to water.

234. Women farmers and young farmers need to be involved at all levels of decision-making because they are responsible for the major part of food production in many developing countries.

235. Farmers' organizations need support, in particular public support, to build their capacities and gain skills so that they are able to play their full role in water management and prioritization through user groups or other consultative frameworks. Farmers should be members of water associations.

236. Linking water management policies with agricultural policies is essential. The creation of special national budget lines for the participation of farmers' organizations is needed.

Developing partnerships as a follow-up to the World Summit on Sustainable Development and the Millennium Development Goals

237. Developing public/private partnerships for water access does not mean the total privatization of water resources. The working and maintenance of water distribution networks should be financed through such partnerships rather than at public expense.

238. Partnerships between researchers and farmers, using appropriate technologies, strengthen water research and extension services. Scientists must benefit from the traditional and indigenous knowledge of farmers by involving them in the formulation of research projects to meet their real needs.

239. There is a need for cooperation between donor agencies and industry for the transfer and adaptation of best technologies in this field.

Using all sources of funding

240. The International Federation of Agricultural Producers calls for:

(a) The mobilization of all sources of funding and an increase in development assistance as a complement to domestic sources of funding;

(b) The achievement of the 0.7 per cent target of GDP for ODA;

(c) Increased coordination of donors and international financial institutions to avoid resource duplication.

241. The Federation favours the creation of national and international solidarity funds to support sustainable water management initiatives with the provision that farmers' organizations are systematically included in such activities.